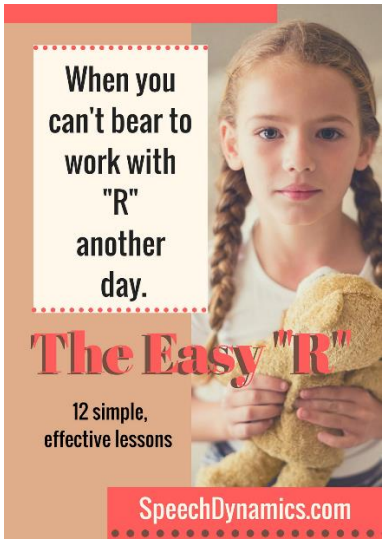
"R" Revealed:

Five Myths that Impede Therapy Results

Char Boshart, M.A., CCC-SLP

Speech-Language Pathologist

SpeechDynamics.com
Char Boshart.com



If you've been working to get a /r/ for over a year, you need to read this. You may have been applying some techniques that are counter-productive. I call them "Myths." They are common-place principles that are assumed to be therapeutically successful.
My therapy-philosophy is "do what works;" keeping in mind that not everything works on every child. The following gives you food-for-thought and additional analysis and therapy options.

Myth #1: That /r/ production features are similar to other lingual consonants

The following are speech-production details that exemplify unique qualities of /r/. Being aware of these critical features will help you to lay the foundation for expert /r/ analysis and therapy. They will also lend credence to the myths, making the alternative views posed within the five myths worthy of consideration.

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Which /r/ production style do you do in your own speech, i.e. when *you* talk? There are two ways to form an /r/ sound. We'll parse each one and determine the physiological characteristics of both. This will help you determine your own production style and guide your therapy.

Do you do a Back-up /r/ or a Retroflex /r/? The easiest way to determine this is to observe your front-tongue. Grab a mirror or close your eyes: think, focus and feel.

If your tongue bunches and retracts, you're a Back-up /r/ user. When looking in the mirror, you'll see the top part of your tongue that contains the papilla as well as the soft mucosa on the underneath part of your tongue.

On the other hand, if you feel your front-tongue curling back and in the mirror you see just the underside of your tongue (the soft mucosa), then you're a retroflex /r/ user. Some people do both, depending on context; you may be one of them. There are more Back-up /r/ users than Retroflex /r/ users, by about 3 to 1. Therefore, in therapy, I typically start with the Back-up /r/.

Interestingly, we just identified two distinct lingual contours that results in the same acoustic /r/. Other than a tongue-tip down /s/ and a tongue-tip up /s/, no other speech sounds are routinely created in two different manners. The /r/ is unique; probably the most unique of any consonant speech sound.

Think about plosives—/p/, /b/, /t/, /d/, /k/, /g/—oral air is impounded and released. Think about fricative, continuant sounds—/s/, /z/, /ʃ/ (sh), /ʒ/ (zh), /f/, /v/, /θ/(th) and /ð/(th)—two articulators posture in close proximity, and maintain that position while air compresses through the space. Plosive productions typically develop early-on, as do some of the continuants. The /r/ production is nothing like any of the above sounds; its complexity is unique. An /l/ production is closest but is still quite different when compared to /r/. *The unique combinations of the contours and contractions of /r/ are physically more demanding than most other speech sounds.*

As we further investigate the two /r/ production styles, we'll focus on the oral, motoric production of the sound, i.e. the physiological features. A speech sound is not merely an acoustic result, it's about the mouth, the primary source of speech.

The Three Critical Components of The Back-up /r/ and the Retroflex /r/

These three components, initiated almost simultaneously, represent the lowest physiological common denominator of the correct production of the /r/:

1) Lingual Placement
2) Lingual Tension, and the formulation of a
3) Resonance Chamber

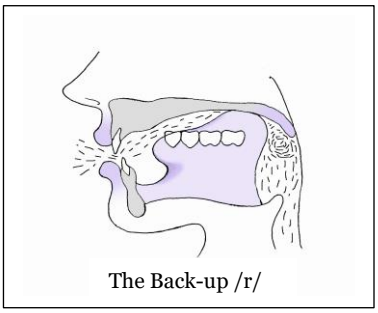
Both /r/s are characterized by the same three components, manifested in different ways. These elements are the only things speech-kids need remember and refer to. These three elements are the core of therapy:

1) Lingual Placement is the tongue's anchorage-placement within the oral cavity and is responsible for shaping an appropriate resonance chamber. Basically, the back-tongue elevates and the "corners" anchor bilaterally on the area behind the top, back teeth. This bilateral area is called the retromolar pads.

2) Lingual Tension is a critical, often overlooked piece to generating a good /r/. Notice your own /r/ lingual tension and its importance. Say a good isolated /r/ (Back-up or Retroflex) and sustain it. Notice your tongue's tension; it's probably fairly taut. This time, do two sounds. Make a good /r/, notice your lingual tension, then keep your tongue in place (as you say /r/), but relax your tongue and listen to the sound. Sound distorted? You may have a r-child with good tongue placement, but no /r/. Check the tension. No lingual tension, no /r/. Why is lingual tension critical? To things: a. The tongue shapes the resonance chamber, b. The tension within the tongue generates the /r/ sound that is created within the resonance chamber.

3) A Resonance Chamber is a space where air accumulates and reverberates, i.e., bounces around. There are two appropriate /r/ resonance chamber locations: Within the pharynx (partially enclosed by back-tongue elevation), and, within the oral cavity (partially enclosed by front-tongue retroflexion and back-tongue elevation).

The Back-Up /r/


The Back-up /r/

Following are brief, but specific details of the Back-up /r/ described within the parameters of Lingual Placement, Lingual Tension, and The Resonance Chamber.

1) Lingual Placement: Do a series of /k/s and feel your back-tongue "corners" anchor behind your top, back molars on the retromolar pads. That's your tongue's stabilization placement for /k/, and for /r/. The tongue anchors and maintains its placement throughout the duration of the /r/. The retromolar pads provide an excellent go-to guide for r-tongue placement. The back-tongue elevates but not so high that it contacts and valves off the space. If this happens, an /ng/ results. Sometimes you may even get a nasalized /r/.

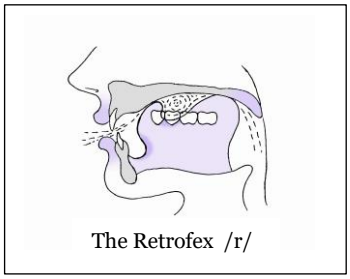
2) Lingual Tension: Think of placement and tension as happening simultaneously. As the tongue retracts and elevates, it also contracts (gets bunchy) and maintains the tension throughout the sound.

3) Resonance Chamber: The elevated back tongue generates a space, i. e., an encapsulated cavity behind the back tongue, within the pharynx (throat). Air "traps" within the pharyngeal chamber and resonates (and it bounces around) for the duration of the production. The partially trapped air eventually seeps through the oral cavity, unlike the ballistic, forceful airflow of plosives and continuant fricatives.

The Retroflex /r/

The necessary components (placement, tension, resonance) to generate a Retroflex /r/ is the same as the Back-up /r/, but the lingual contouring of the Retroflex /r/, i.e. how the components are manifested, are different.

Again, focus and feel your own lingual stabilizations, mobilizations and tensions as we detail the Retroflex /r/. Basically, two maneuvers differ from the Back-up /r/: The front-tongue curls (instead of bunches), and the resonance chamber is *intra*-oral instead of pharyngeal. The back-tongue elevation and retromolar stabilization remains the same.


The Retrofex /r/

1) Lingual Placement: Once again, do a series of /k/ sounds out loud to identify your stabilization placement on the retromolar pads. *This is also the back-tongue anchor-placement for the Retroflex/r/.* This supportive placement is maintained throughout the duration of the /r/. But we're not done, in addition to back-tongue involvement, the front-tongue is also involved: It curls back (it retro-flexes), *simultaneously*. In conjunction with the elevated back-tongue and the roof of the mouth, the curled front-tongue completes the oral resonance chamber.

2) Lingual Tension: For the Back-up /r/, we mentioned that placement and tension happen simultaneously; two layers of activity occur. For the Retroflex /r/, three layers of activity occur simultaneously. a. The tongue retracts posteriorly, b. The back-tongue elevates toward the retromolar pads, and, c. The mid-tongue contracts (a muscular hydrostat maneuver) and the front-tongue retroflexes and curls back. The lingual curl is in contrast to the bunchy nature of the Back-up /r/. Both serve to contract the tongue and influence resonance.

3) Resonance Chamber: The elevated back-tongue and curled front-tongue shapes a /r/ resonance chamber within the oral cavity. This chamber is more anterior as opposed to the pharyngeal resonance chamber of the Back-up /r/ that is more posterior. They are both, however, constructed resonance chambers where air resonates within to generate the sound, aided by the tenseness of the retroflexed tongue, and the respiratory and phonatory sub-systems.

In therapy, the goal is to generate lingual capability to consistently retract and elevate (do retraction and elevation tasks) and find its stabilization placement while simultaneously contracting and sustaining its position. R-resonance is facilitated because of correct lingual placement and tension. The tongue must be able to contract while moving; and hold.

Myth #2: That rounding lips in therapy is a helpful strategy

For r-distortion kids, to maintain or encourage lip rounding while trying to generate a new, preferred /r/, is counter-productive.

As stated in Myth #1, most of the lingual action for /r/ happens in the posterior part of the mouth, i.e., the tongue retracts and elevates and "traps" air within a resonance chamber—either within the pharynx or within the elevated and curled tongue.

Lip rounding for newbies encourages deliberate, non-stop airflow to the front of the mouth. Typically during their r-efforts, the tongue is down in back, and relaxed. Therefore, the air does not stop or become encapsulated and resonate anywhere along the oral route; the air just travels through.

So why do they round their lips? They round their lips in an effort to shape an intra-oral resonance chamber to generate the "r" sound, but their efforts are unsuccessful. Their effects result in something like a /w/ for /r/, e.g., "weed" for "read". To analyze their "w" a little more, their sound initially sounds like the vowel /u/ (as in "blue"). Then, as the lips un-pucker to move into the rest of the word (as in "r-ead"), we acoustically perceive the sound as a /w/.

Inherently, a person who produces a good /r/ may occasionally round their lips for emphasis; that's fine. But for the child who does not have a good /r/ and is trying to formulate one, lip rounding is oppositional. Therefore, what can we do to get them to stop rounding their lips? De-emphasize lips, emphasize the "back," meaning the back of the tongue and the retromolar pads.

When first beginning r-therapy do everything you can to de-emphasize the lips: No rounding, no tension, no moving, and emphasize the "back," i.e., the retromolar pads. Consider using a dental floss holder (try the 8" Flossaid Dental Floss Holder; not the small ones). With the tongs, palpate the area behind the top, back teeth (the retromolar pads; both sides), and, bilaterally palpate the "back-corners" of the tongue. Palpate the areas a few times, remove, then ask them to match (put together) the two areas. Do several times, over time.

Tongue-Jaw Differentiation Issues: Sometimes as they try to de-emphasize lips and emphasize tongue retraction, you might see jaw retraction instead. Jaw retraction is an overflow movement and indicates poor differentiation between the tongue and the jaw. Typically, when the tongue is not capable, the jaw takes over and tries to help.

In this case, stabilize the jaw externally, and work on building tongue retraction capability so it can move independently (do Out-In tasks, i.e. the tongue moves anteriorly and posteriorly, out and in, without tension). When the tongue is able to do the Out-In task consistently, add tension to the retraction. Just keep the jaw still, and out of the lingual movement.

If the child is able to keep lips still (also, not tight) and out of the production picture, he/she has a really good opportunity to change their /r/ oral operating zone from the front of the mouth to the back. That's a key. Simultaneous tension is another one.

Myth #3: That there are two r-sounds: a consonantal r-sound and a vocalic r-sound

In the speech pathology literature two sometimes confusing terms are used: The Consonantal /r/ and the Vocalic /r/. The confusion has mostly been in their application in therapy. In my early days as an SLP, I actually thought they were two different speech sounds and I wasn't sure how to evoke them in my kids. Well, of course, they're the same sound. There is only one /r/ sound. An acoustic difference occurs not in the actually /r/ but in the act of HOW the tongue moves into the /r/ position.

The terms "Consonantal /r/" and "Vocalic /r/" refer to the "r" in *print* and where it occurs in words, *not* the acoustic quality of /r/. A Consonantal /r/, of course, is the "r" in *red, road, bread,* etc. A Vocalic /r/ is the combination of the "r" plus a vowel as in *car, ear, board,* etc.

Let's take a step back…we know about the two /r/ lingual contours we use to generate a /r/ sound: the "Back-up /r/" and the "Retroflex /r/." This section addresses the additional lingual movement that you and I must do to produce correct r-words *across phonetic contexts*.

The Pre-Postured Style of Moving into the Consonantal /r/

First, to produce an isolated /r/, or initial /r/ or r-blend (via a Back-up /r/or Retroflex /r/), the tongue "pre-postures." The tongue anchors its production placement—*prior to the /r/ production*—then says the /r/ and moves on to the vowel. For example, say "bread" out loud and notice your tongue as it pre-postures, anticipates, and accesses its /r/ placement simultaneously as you form the /b/.

This means that the tongue moves to and assumes its placement *prior to* making the /r/ sound. The movement is rapid. The tongue must be familiar with its trajectory and destination (the retromolar pads).

These pre-postured productions are unstressed, are naturally not sustainable (we don't say, "Rrrrrrun to the store."), and release to vowels (is pre-vocalic). Motoric Pre-Posturing also occurs in a consonant + /r/ combination (C + /r/), as in the word "burr".

The Transitional Style of Moving into the Vocalic /r/

Conversely, the motor pattern for the V+"r" is totally different from the pre-postured one; it's "transitional". Say the word "are" out loud, several times. For the /a/ the back-tongue is down and air moves through. Then, as you transition to the "r", the tongue elevates and almost simultaneously contracts, stabilizes, and forms its resonance chamber for "r. The tongue shapes the "r" as it moves, i.e. as it transitions.

The Transitional Style means that the tongue moves from its vowel placement and lingual contour to the "r" placement and lingual contour. During this transition the tongue concurrently: Re-shapes itself, contracts, secures its stabilization placement, redesigns the oral resonance cavity (to a resonance chamber either within the pharynx or a reconfigured oral cavity), and influences the existing, sustained vowel airflow and "shapes" it into the "r" sound.

Myth #4: That oral soft/hard tissue differences do not impact the /r/ production

As SLPs, when we discuss speech sound development, and the distorted /r/, we refer to it as "developmental." So, I ask, *what is developing*? Do sounds (what we hear) develop? No, the resultant sound is a consequence of its oral environment. In reality, it's the individual's oral *capability* to produce and coordinate the movements, etc., that generate the sound. Following is an overview of a few oral factors, developmental or not, that may alter /r/.

A Tongue Tie

A tongue-tie (a restricted lingual frenum) can hinder the clear production of many speech sounds, including the production of /r/: The front-tongue curling, and the whole-tongue retraction and back-tongue elevation can be hampered, if not restricted. My first choice as to the recommended type of compensatory /r/ production would be the Back-up /r/. But neither the Back-up /r/ or the Retroflex /r/ is ideal for the person with a restrictive lingual frenum.

Large Tonsils in a Small Pharynx

Check the size of the tonsils in relation to the size of the pharynx (throat). A larger pharynx with larger tonsils can provide ample space for the tongue to retract and acquire its positioning. However, if the pharynx is of average size and the tonsils are large, there may *not* be ample space for the tongue to retract, elevate, and generate back-tongue retromolar stabilization.

Consider a two-phase analysis: Closely determine the size of the pharynx and the size of the tonsils, then, ask the child to retract his/her tongue (if possible) and determine if there's adequate space for the tongue to function and breath. If the tongue contracts and compresses against an already-filled-pharynx, breathing will be compromised.

If there are truly large tonsils in a small pharyngeal space, the /r/ production is probably not the child's only, or biggest problem. There may possibly be: Additional speech issues, a low-forward tongue resting posture, lingual hypo-tonicity, large adenoids, chronic nasal stuffiness, speech hyponasality, eating issues, sleep apnea, behavior issues, etc.

Low Tongue Resting Posture

With few exceptions, wherever the tongue rests is where it works. If the tongue chronically rests down, or down and forward at the oral horizontal midline, chances are good it will stay in that area to formulate its speech contacts. When this happens, sometimes speech sounds imprecise, unclear, or "slushy."

Also, a low resting tongue is a non-contracted tongue; it's typically "relaxed", and over time may literally become hypo-tonic, or close to it. We know that the production of /r/ necessitates quite a bit of tension. *It has to*. There has to be lingual tension to influence the sound within the /r/ resonance chamber that's formed either within the pharyngeal area or within the retroflexed tongue.

Unlike therapy with other speech sounds, when doing /r/ therapy lingual placement is not enough. There has to be concurrent lingual tension, in addition to placement. A low tongue resting posture may affect the tongue's tonicity and effort and consistency of lingual contraction.

Myth #5: That a "good /r/" can consistently be shaped and established via repetitive auditory stimulations

If the child is truly developmental, yes; he/she can be stimulated auditorily into producing a good /r/. However, if there are "issues," /r/ stimulation will be an up-hill battle.

Here's what I mean…. Within the previous seven pages, you have broadened your thinking beyond the sound of the sound and into the physiological elements of the sound-production itself. You've learned how the tongue contracts, retracts, elevates and anchors. Then, it holds its placement and tension while encapsulating air and adds phonation. *The /r/ requires more production "layers" than any other speech sound.* There's definitely more sustained lingual tension and sensory-motor coordination involved than in any other sound, and, the tongue must proprioceptively be familiar with its retraction-trajectory, and, have the capability to move quickly to the retromolar pads.

Pure auditory stimulation, i.e., asking the child to listen and repeat a good /r/, typically results in repetitive practice of the incorrect production. Quite possibly, if the child could do it, he/she would. Therapy for /r/ goes beyond what I call "fancy sound-stim," i.e. brief verbal explanation and auditory imitation.

With that said, any number of things can trip-up the /r/ production. A few are them were suggested in Myth #4. A restrictive lingual frenum can inhibit tongue retraction and elevation. Large tonsils in a small pharynx can obstruct full tongue retraction and placement. A chronic low-tongue posture can cause reduced lingual tonicity.

And, there's another obstacle; an oral sensory obstacle. One that's heard about very infrequently, but I would be remiss if I didn't at least mention it here. Many /r/ distortion children have intra-oral hypo-sensitivity. Meaning, when you palpate the back of their mouth they have a low-to-no gag response. I have personally witnessed this frequently in my r-kids.

In summary, these are all obstacles that most likely will not be overcome by auditory stimulation and trial-by-repetition.

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Sometimes, kids come close to making an /r/. In therapy, there are those who desperately try to make the sound of /r/ by curling their tongue waaay back, or by sliding their back-tongue waaay down, making a guttural-sounding "r". And others retract their jaw, or excessively round their lips. None of these alternative positions meet the criteria for the /r/ placement or /r/ sound, and none of them are physiologically comfortable to the user. The overflow movements are too effortful and effortful productions will not shape into a good speech sound or generalize.

From the beginning of therapy, aim for an isolated /r/ that meets the /r/ criteria (placement, tension, resonance chamber). From the start, shape and acquire the isolated /r/ that they will eventually use in conversational speaking.

If you aim for the sound-of-the-sound, and not the /r/ criteria, you and the child may be disappointed. If the new production doesn't contain the correct features of retromolar placement, simultaneous lingual tension, and an encapsulated resonance chamber, it isn't a keeper. It isn't a /r/ that will carryover and generalize. Aim for the whole enchilada—you'll be glad you did.