

Successful R Therapy



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All definitions of speech terms presented in quotes are from *Terminology of Speech Disorders* by L. Nicolosi, E. Harryman and J. Kresheck (Williams and Wilkins: Baltimore. 1983).

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Disclaimer

This text describes invasive oral-motor stimulation techniques intended for use by the professional speech and language pathologist. The book has been written with the knowledge that some readers are new to the area of oral-motor therapy while others are well-versed in it. Professionals who utilize these techniques must have thorough knowledge of the oral mechanism, including its structure, sensitivities, reflexes and movements. Professional judgment and common sense must rule the application of these techniques with specific clients. As such, the reader is solely responsible for discretionary use of the oral-motor techniques contained herein.

Dedication

To Dr. Robert K. Simpson, who modeled a deep respect for traditional articulation therapy, and to Ruth Ann who hungered to understand it.

To Alex and Robert, who worked so hard to conquer their R sounds; and to Sharon and Nancy, who supported their boys' efforts so well.

Please Note

- Male pronouns (*he, him, his*) will be used throughout the text to refer to clients.
- Female pronouns (*she, her, hers*) will be used to refer to speech and language pathologists, teachers and other adult helpers.
- The term *normal* will be used to indicate the absence of speech impairment, as in the sentence, “The W-for-R substitution is expected in normal speech development.”
- The terms *speech and language pathologist, speech pathologist, speech therapist, speech trainer, speech teacher, facilitator* and *therapist* will be used interchangeably throughout the text.
- All cases described in the text have been taken from the author’s direct clinical experiences. Names have been changed to protect privacy, except where clients have asked that their real names be used.

Symbols Used in the Text

Professional speech and language pathologists use the International Phonetic Alphabet (IPA) to transcribe the spoken word. This is a good thing because it allows a report writer to specify exactly how a client is speaking specific phonemes. Such precision means, however, that there are at least ten different phonetic symbols used to signal differences in stress and pronunciation of the phoneme that is the subject of this book. Such a great number of symbols makes writing even the simplest sentence extremely cumbersome. The title of this book, for example, would read: *Successful /ə/, /ɜ/, /ɑə/, /iə/, /uə/, /oə/, /eɪə/, /aɪə/, /aʊə/, and /ɔɪə/ Therapy*. Yikes!

In order to simplify this material, it became necessary to develop a symbol that could represent all forms of our subject sound. Toward this end, the following procedures have been adopted:

- The capital letter R has been chosen to stand for our subject phoneme in all its variations. This nonstandard simple designation allows us to discuss the production of /ə/, /ɜ/, /ɑə/, /iə/, /uə/, /oə/, /eɪə/, /aɪə/, /aʊə/, and /ɔɪə/ as a collective whole. It also makes the text more readable by the concerned public.

- Isolated capital letters also have been used throughout the text to designate all other consonant phonemes. For example, L is used for /l/. Uppercase letters also are used for the vowels. For example, E is used for /i/.
- A combination of upper and lowercase letters is used to designate phonetic symbols that require the use of two or more standard orthographic symbols and blends. For example, Sh is used for /ʃ/, Ng is used for /ŋ/, Br is used for /br/ and Spr is used for /spr/. Some vowel sounds also are designated with a combination of upper and lowercase letters. For example, Ah is used for /ɑ/.
- Standard orthographic spellings are used where nonsense words have been employed to explain procedures. For example, *bar-bar-bar* is used for /bæ̃ bæ̃ bæ̃/.
- Where it has been necessary to use IPA symbols, Standard English spellings appear alongside.

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Introduction

For more than twenty-five years, I have traveled to all four corners of the United States and Canada teaching continuing education seminars on the longterm persistent R distortion. Speech and language pathologists everywhere struggle with this so-called “mild” articulation disorder because it is not always easy to fix. While many clients learn this sound quickly and easily, great numbers simply cannot pronounce R no matter what. Correct production of the sound becomes the client’s unobtainable and elusive Holy Grail, and the R sound they are left with sounds very bad. The speech and language pathologist who is in charge of this client’s failed speech program usually feels terrible when this occurs.

Unfortunately, articulation therapy for mild cases has gone out of favor as the primary responsibility of the speech and language pathologist. Throughout the past twenty years, therapists have been required to give less time to clients with mild speech problems and more time to those with severe speech and language disability. Simultaneously, university training programs have deemphasized phonetics and articulation training. As a result, thousands of children with distorted R’s are left untreated either because therapy has been taken away from them or because the assigned therapist has not been taught how to fix the problem in the first place. I find this to be a tragedy for bright children with this error. These children are our future leaders in politics, medicine, scientific research, education, religion, mathematics, music, theater, publishing and more. They deserve to have good speech with clarity on all phonemes. As a society, we need them to be able to communicate their ideas clearly.

My greatest interest in the profession of speech and language therapy has always leaned toward the speech side. In university, I loved my classes on the anatomy and physiology of speech movement, and I had the great privilege of studying under Dr. Willard Zemlin, author of the acclaimed *Speech and Hearing Science*. I also excelled in phonetics and phonology under the careful tutelage of Dr. Elaine Pagel Paden and the enthusiastic clinical work of Dr. Barbara Hodson, joint authors of the infamous phonology primer, *Targeting Intelligible Speech*. I also learned articulation development, assessment and therapy in undergraduate courses taught by a relatively unknown yet dedicated professor, Dr. Robert K. Simpson. Dr. Simpson was a proponent of traditional articulation therapy, ala Dr. Charles Van Riper. He taught us the nuts and bolts of treatment, and he had a

way of helping us to think about the process of changing speech habits. After graduate school, I was introduced to the development of oral movement in feeding by Dr. Suzanne Evans Morris while she was undertaking a doctorate at Northwestern University. *Voilà!* The concept of oral-motor therapy in articulation and phonological therapy was born. These five teachers have had a huge influence on my work, and their teaching paved the way for all of my written work, including this current volume.

I began to study oral movement as it related to speech sound production, phonetics and phonology. My first public presentation on the topic was a paper on the lateral lisp presented at the Illinois Speech and Hearing Association Convention in 1979. My first two-day workshop on oral-motor therapy was presented in 1982. It was entitled *Tactile and Proprioceptive Stimulation Techniques in Articulation Therapy*. There were fifty people in attendance. Since then, the topic of oral-motor therapy has become a hot topic in the field of speech and language therapy as more therapists have become interested in its methodology. Oral-motor therapy dominated the field during 1990s and has continued its strong presentation into the twenty-first century in the therapy rooms of this country.

A predictable problem in the widespread use of oral-motor techniques has ensued, however. In our profession, we tend to let go of old ideas as we grab hold of new ones. Following this tendency, therapists have begun to substitute oral-motor techniques for traditional articulation therapy procedures. For example, I received a call recently from a speech and language pathologist who was concerned about her client with a lateral lisp on all the sibilants. She assured me that she had read everything I had written on oral-motor therapy, and that she even had attended a few of my seminars on the subject. She said that she “believed” in oral-motor therapy. Then she stated that although she had helped the client improve his basic jaw, lip and tongue control, he still could not produce a midline sibilant. She wondered what else she could do. She wanted more advanced oral-motor techniques. But she did not need any. What her therapy procedures were missing was basic information about the phonemes themselves. She and her client were not working on phonemes; they were working on oral movements. His oral-motor skills were improving, but his phonemes were not.

This is a wrong approach.

One does not engage in oral-motor therapy and then assume that all phonemes will fix themselves simply by practicing them over and over again. Instead, oral-motor techniques should be embedded into an articulation or phonological therapy program that addresses the phonemes or phonological processes in error. Oral movement should be taught side by side with other methods of speech sound awareness and production. This book is a demonstration of that idea. It explains how one integrates oral-motor therapy procedures into a traditional program of articulation therapy for the remediation of R.

I have presented the best I can about articulation therapy for the misarticulated R phoneme in this volume. The perspective arises from a combination of ideas from phonetics, phonology, oral-motor therapy, behavior management, language development, child development, psychology and, of course, my own nearly three decades of clinical experiences. It has not been an easy book to write, and I have gone through numerous drafts over more than twenty years to do it. I have found that it is difficult to translate the

dynamics of therapy onto the written page. To describe with words what one hears with the ears, sees with the eyes and feels with the hands has proven to be arduous. And to describe what one feels with the heart and intuits with the mind during the course of treatment is almost impossible. It is much easier to explain all these things in the workshop format during which models can be offered and videotapes can be shown. The visual image fills many gaps left behind by the written word. Throughout this writing I have tried to avoid all standard reporting protocols. I have instead written this book as if you the reader were sitting with me and I was simply describing to you what I know. I have not tried to prove my techniques; I have only tried to explain them.

Currently, I operate a private practice in the Seattle suburbs, and I see preschool and school-age children with a wide variety of speech and language problems. My caseload always contains elementary, junior-high and high-school students with persistent R distortion. I usually see lots of R kids in the summer, and I provide consultation throughout the year to area therapists needing help with these kids. I also tend to serve the offspring of speech and language pathologists. I love the intricacies of R production and its distortion, yet I am ever intimidated by the challenge a new client brings to therapy. With each new case I ask myself, "Can I help this one?" Honestly, I almost always doubt my skill at the onset of treatment. Then the therapy itself reveals to me whether or not I know what I'm doing. Direct treatment always forces me to change and improve my techniques. At this point, some 28 years into my career, I think I am finally ready to write down that which has proven successful for me in R therapy.

Readers will come to this book with various levels of expertise in articulation therapy. If you are a well-seasoned therapist, this material will reinforce what you already know. It will help you understand what you are doing, and it may help explain your plans and procedures to clients, parents and other colleagues. If you are new to the field of speech and language therapy, if you are new to R therapy, or if you are simply struggling with R therapy, you need two things: information and experience. You will get lots of information here, but hands-on experience only comes with time. Skill in treating an R distortion is perfected during years of direct work with a wide variety of clients. Learn what to do here, but pay careful attention to what you are doing in your treatment room. Also, seek hands-on help from other therapists who work in your geographic area. Thirty minutes of watching and talking with another more experienced therapist can reveal secrets of therapy that written material simply cannot.

This is not a cookbook of R therapy techniques. Dr. Simpson, to whom this book is dedicated, would give me fifty lashes with a wet noodle if it were. However, these practical ideas have been presented in such a way that the reader would be helped to *think* about the misarticulation of R. Ultimately, what makes for successful R therapy is the ability to see the issues clearly and to think through the remediation process. I have included exercises throughout the text to help readers learn the basic ideas presented here. These exercises represent the types of successful real-life experiences I have used in my workshops on R therapy. I also have made illustrations to clarify points.

My hope is that the information presented in this book will serve speech and language pathologists and their limitless supply of clients with longterm persistent R misarticulation.

I also hope that this book will help stimulate the field of speech and language therapy to return once more to the scientific study of phonetics and articulation remediation. Seasoned professionals familiar with the works of Dr. Charles Van Riper and his colleagues will be pleased to see so many of the “old ideas” brought back to life. New studies on articulation development, disorder and remediation that are based on current information about oral-motor development could make these research projects fantastic. In fact, there are thousands of statements in this book that could be the cornerstone of any number of research projects. The information discovered in them would further the knowledge that the professional speech and language community needs to improve their worldwide services to clients with R misarticulation.



The Incredible R

Basic Facts about a Most Difficult Phoneme

Correct pronunciation of the North American English R is so difficult to master that some English speakers fail to learn it and face a lifetime of whispered ridicule.

- “He talks funny.”
- “What’s wrong with him?”
- “Is he from somewhere else?”
- “I don’t think he’s very smart.”

Despite the difficulty many people face in attempting to master this sound, the problem of the misarticulated R phoneme is considered a mild one. In fact, many speech and language pathologists do not treat R problems within the public school setting any more. The attitude is that a distorted R does not interfere with a student’s academic success. Thus, there is no reason to address it in the academic environment. This attitude about R, and about mild articulation problems in general, also is pervasive in the university training programs that prepare students to become professional speech and language pathologists today. A great number of these advanced degree programs have reduced the amount of time spent on phonetics and articulation so much that new graduates report they have never discussed the distorted R in class nor have they ever seen a patient with the problem. This is a shame because the distorted R is an extremely common articulation error pattern and its presence is not a minor problem for the person afflicted with it.

Failure to acquire the R sound can cause problems for both children and adults. These people can have trouble being understood and being accepted. They can have difficulty with self-expression and public speaking. Even with high intellectual skills, people with R distortion can be viewed as lacking in intelligence and common sense. Elementary children with distorted R’s are called “babies” by their peers, and older students are isolated and considered “weird.” Further, despite the popular notion that an R distortion does not interfere with academic success, many of these children have difficulty differentiating the sound of R from other phonemes, especially the vowels. This can result in reading, writing and spelling problems and deficits in general vocabulary acquisition.

Despite these potential problems, however, many people with R distortion blaze through life without ever correcting it. In my travels across the United States and Canada, I have encountered R problems in teachers, preachers, accountants, taxi drivers, film directors, writers, police officers, fire fighters, physicians, grocery store clerks, hotel managers, professors and computer software designers, to name just a few. Even politicians, television journalists and actors, people for whom public speaking is a way of life, can have difficulty with R. Clearly an R distortion does not stop one's life; it merely alters it.

In special cases, an R that is pronounced differently than the crowd can be a good thing. Consider the dialectical speech pattern of President John F. Kennedy with his Massachusetts' R sound, or journalist Barbara Walters with her famous distortion of R. These renowned pronunciations of R and other phonemes have helped them stand out from the crowd. Since an R distortion is attention grabbing, sometimes it is created purposefully for special effect. For example, the unique voices of Bugs Bunny, Elmer Fudd and Tweety Bird were created in part by modifying their R sounds. A variation in the pronunciation of R even can enhance the marketability of a child actor because it makes him appear younger and more innocent or adorable—at least for a few sweet years before he reaches adolescence. In short, when a distortion of R is wanted, it can be a beneficial thing. But an unwanted R distortion is not a good thing when the person afflicted with it cannot get rid of it.

The sound of R is so difficult to produce that it is a wonder small children ever learn to say it correctly in the first place. However, millions of children learn it every day without special help. Most of these children learn it during the preschool years, and nearly all have mastered it by five or six years of age. Only a small percentage has not figured it out by six, seven or eight years of age. These are the children who usually are taken to the speech and language pathologist. If the child's R problem is not part of a more serious speech disorder, most of these children will succeed in acquiring the sound of R after a period of therapy. A small portion fails miserably. These children eventually give up or are dismissed from therapy when it is ascertained that R simply is too hard for them to learn. A failure in learning to say R correctly during many years of speech and language therapy can be exhausting and exasperating for the client as well as his therapist and family. Extensive therapy can take away from time in the classroom learning other subjects, and it can be expensive if done in the private sector.

What is it that the client with persistent R distortion cannot achieve? In the rest of this chapter we shall describe phoneme R as it is pronounced correctly in Standard North American English. We shall describe its acoustic quality and its method of production. We shall discuss the Tip R, the Back R, the Vocalic R and the Consonantal R. We shall describe the oral movements necessary to achieve the correct acoustic quality of the R sound, and we shall discuss why our clients have difficulty acquiring this sometimes elusive phoneme.

Methods of assessment and treatment will be described in the remaining chapters, but readers are cautioned against jumping ahead. All assessment and treatment techniques are based on a thorough understanding of the phoneme itself. This understanding comes from an acoustic and an oral-motor perspective. There has been such a neglect of this topic for so many years that it is necessary to review what we know about R from a traditional phonetics perspective, as well as from a newer oral-motor viewpoint. This material lays the

foundation for all of our methods of treatment. It explains why successful techniques are designed the way they are.

The R Sound

The acoustic quality of the R phoneme is at the heart of our discussion about R and at the very core of all remediation techniques. The R phoneme is a sound of unusual distinction. It rings with a quality unmatched by any other consonant or vowel. When articulated correctly in words, phrases, sentences, conversational speech or singing, the R sound goes completely unnoticed. If mispronounced, however, it sticks out like a sore thumb.

The R sound is represented orthographically by the letter we write as capital *R* or lowercase *r*, the eighteenth letter of the alphabet. The R sound:

- Can be strong, as in the word *run*
- Can be weak, as in the phrase *cat or dog*
- Can occur at the beginning, middle or end of words
- Can act as a consonant or a vowel
- Can occur in consonant clusters (blends)
- Is classified as a linguapalatal glide in phonetic terms
- Is characterized as both [+vocalic] and [+consonantal] in phonological terms
- Is made upon exhalation and with voice
- Is made with good oral resonance and without nasality

Other consonants that are characterized similarly and that are most like R include the other three glides W, Y and L. Thus, the R sound makes the word *rate* sound different from *wait* or *late*, and makes *ram* sound different from *yam*. The R sound contributes to a speaker's overall intelligibility. When spoken correctly, the R sound does not draw attention to itself or to the speaker.

Auditory Skills

Clients in R therapy have various amounts of knowledge about their R misarticulations. Some are completely unaware that they have this problem. Others have a vague notion that they don't speak well but do not know that R is a concern. Some clients know they cannot say R and want to fix it, while others know of the problem but don't care that it's there. Regardless of a client's particular recognition or acceptance of the problem, the first step of treatment always is to make the situation known to him. This knowing generally comes through *auditory discrimination* activities.

Auditory discrimination is the ability to distinguish between sounds. For the production of R, a client must be able to distinguish R in two ways. First, he must recognize R as unique from all other consonant and vowel sounds. Second, he must differentiate the correct production of R from any distortion thereof. Many long-term R clients cannot tell whether they are producing good sounds or bad ones. It is amazing to observe them when they think they are producing excellent R's. Many of them have no idea how bad they sound!

The case of Brian illustrates this point. Brian came to me at the age of eleven years. His mother informed me ahead of time that he did not want to come to therapy, so we scheduled a one-time visit for a short assessment and a talk. Brian did not produce one single R sound correctly during that hour, but he assured me that he sounded just fine. He told me that nobody noticed anything about his speech, except his mom and his former speech teacher whom he thought was “stupid.” When I asked him to produce his very best R, he made a sound with even worse distortion. When asked how he thought he had done on that task, he said, “That was the best R I ever did!”

Many children have not developed a correct auditory category for the sound of R. They can hear R and they are aware of it as a unique sound, usually. But they cannot hear that their own sound is out of the range of acceptability for the R sound. They have blended correct and incorrect productions of R into one gigantic acceptable group. Our job is to help them make two separate categories out of this: one for good productions and another for bad ones. Techniques to facilitate improved auditory discrimination of R are discussed thoroughly in chapter 5. The ability to differentiate correct from incorrect R sounds is at the heart of learning to say R.

But there is an even more important reason to address auditory discrimination skills in R therapy. It is the ear that teaches the mouth to position correctly. That’s right: The ear teaches the mouth to move. We want the client to experiment with subtle changes in jaw, lip and tongue position while listening carefully to the way in which his vocal productions alter with each minute change. The client must listen more carefully to these auditory shifts in his speech than he has listened to anything since his infancy. He must come to hear how his oral-position changes alter his own sound, and he must use this combined auditory-oral-motor experience to figure out how to make a correct R. This is the essence of R therapy. As the reader shall see in chapter 5, we begin with gross auditory discrimination of the therapist’s production and end with the client’s ear finely tuned to his own sound.

Oral-Motor Skills

How does one make an acceptable R? Any phoneme, including R, is made with certain jaw, lip, tongue and velar movements.

- *Jaw:* Jaw position is relatively the same no matter how one produces a good R sound. It is held slightly lowered so that the mouth is partially open. We call this a *finely graded open position*. The finely graded open position is low enough to allow sound to be emitted from the mouth without muffling, and high enough to allow swift and accurate lip and tongue movement for sound production.
- *Velum:* Velar position also is always the same no matter how one produces a good R sound. It is elevated to prevent the sound from entering the nasal passageways. This makes R oral and not nasal.
- *Lips and Tongue:* The lips and tongue can be positioned in two very different ways that have had various names in the articulation literature. We shall call them the *Tip R* and the *Back R*. Each is discussed individually below. The vocabulary used to describe these movements for R is based on the zones of the tongue proposed in *Oral-Motor Techniques in Articulation and Phonological Therapy*. (See appendix A for an introduction.)

The Tip R

The *Tip R* derives its name from the position of the tongue tip. It also has been called the *Tip-Up R*, the *Tip-Back R*, the *Curled R*, the *Retroflex R*, the *Immature R* and the *Incorrect R*. We shall use the term *Tip R* throughout this text.

The Tip R usually is easier to produce than the Back R. To produce the Tip R, the tongue-tip elevates and curls back toward the velum in a grand sweep. As the tip curls back, the sides of the tongue, from the tip all the way to the back on either side, also curl. In essence, the tongue scoops up in a cup—or bowl—shape and tilts toward the back of the mouth. The middle of the tongue remains low relative to the sides and tip. The overall shape the tongue assumes for a Tip R is like a small cave whose open side is facing the oropharynx. Readers familiar with oral-motor development will recognize this position as an exaggerated tongue-bowl position. The rear-facing cave of the Tip R creates a resonance chamber for the sound of R. If we think of the mouth itself as a resonance chamber, then the correct sound of Tip R is achieved with voice resonating into two chambers: a small resonance chamber formed by the tongue inside a larger resonance chamber formed by the mouth. The walls of the inner chamber shaped by the tongue have a certain firm consistency created by a required level of tension in the tongue's musculature. The lips may retract slightly during production of the Tip R to shorten the length of the oral cavity.

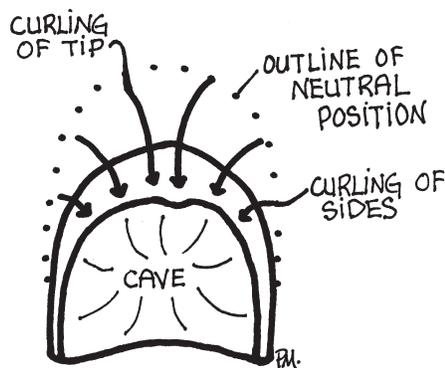
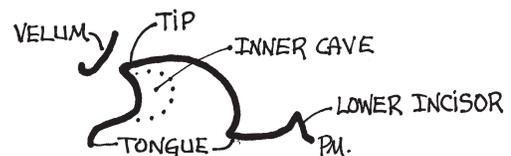


Fig. 1. Aerial View of Tip R Position: Note that both the tip and sides of the tongue are curled up and back to form a small resonance chamber facing the oropharynx.

Fig. 1.1. Lateral View of the Tip R Position: Note that both the tip and sides of the tongue are curled up and back to form a small resonating chamber facing the oropharynx.



EXERCISE 1.1

DISCOVER YOUR HABITUAL R

DISCOVER THE TYPE OF R YOU HABITUALLY PRODUCE. SLOWLY SAY THE FOLLOWING WORDS ALOUD: ARE, CAR, BAR, JAR, STAR, FAR AND BIZARRE. NOTICE THE AMOUNT OF JAW MOVEMENT AND LIP ROUNDING YOU USE TO ACHIEVE R. THEN THINK ABOUT YOUR TONGUE. DOES YOUR TONGUE TIP GO UP AND BACK TOWARD THE VELUM TO PRODUCE A TIP R? OR DOES THE BACK OF YOUR TONGUE ACTIVATE TO PRODUCE A BACK R? WHAT ABOUT WHEN YOU SAY R AT THE BEGINNING OF A WORD? SAY: ROCK, REAL, ROOM, RICH, RACK, AND RED. DO YOU USE A TIP R OR A BACK R? DO YOU USE BOTH R SOUNDS DEPENDING UPON WORD POSITION?

The Back R

The Back R derives its name from the position assumed by the back of the tongue. It has also been called the *High-Back R*, the *Correct R*, the *Mature R* and simply *R*.

In my work with tens of thousands of speech and language pathologists in North America, I have found that most have an incorrect idea about how the tongue actually positions itself for production of the Back R. The standard belief is that the entire back of the tongue elevates toward the velum for production of this sound. This is incorrect. If one were to elevate the entire back of the tongue in one mass toward the velum to produce R, the result would be a sound with distortion.

Rather than functioning as a single unit, the Back R is made through differential control of three parts of the back of the tongue: the middle back and two lateral back sections. In true production of the Back R, the back-lateral margins of the tongue elevate and are braced upward against the molars or palate on either side. They are the points of stability for all tongue movements, including those used in the production of R. With the lateral margins stabilized, the tongue's middle back tenses up toward the velum but does not touch. The tip tends to retract into the body of the tongue as the back sections elevate. Elevation of the tongue's back-lateral margins forms a midline channel for sound to travel through the mouth. Tension of the middle section alters the channel so that R will result. In sum, Back R is made by stabilizing the tongue at its back-lateral margins as the middle back tenses and the lips round.

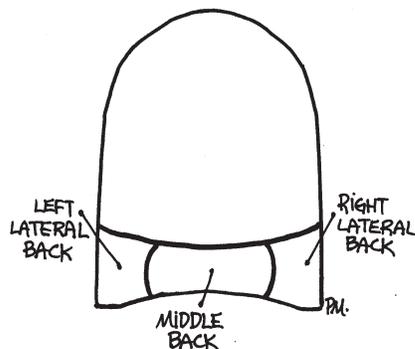


Fig. 1.2. Back of the Tongue: The back of the tongue is comprised of three parts: the middle back and two lateral back sections.

Fig. 1.3. Aerial View of Back R Position: Note that the lateral margins of the tongue are stabilized, the tip is retracted and the middle section tenses.

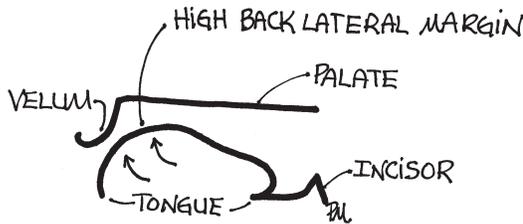
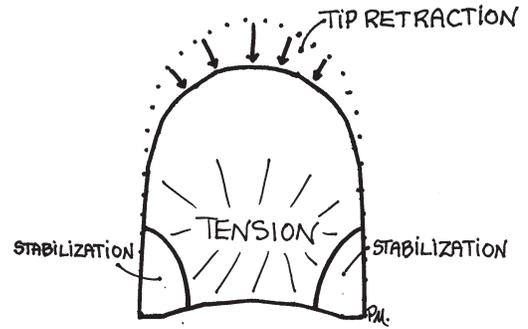
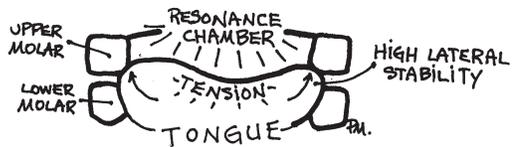


Fig. 1.4. Lateral View of the Back R Position: A true lateral view shows high elevation of the back-lateral margins.

Fig. 1.5. Posterior View of the Back R Position: The posterior view shows that the lateral back sections are stabilized in a high position and that the middle tenses but does not touch the palates.



What Is Normal?

Which R is normal, is it the Tip R or the Back R? Most practicing therapists today were taught that the Back R is a superior form of R and that there is something wrong or suspicious about the Tip R. However, early research on R revealed that approximately 60 percent of the normal adult population used the Back R as their habitual R formation, and about 40 percent used the Tip R. My informal workshop questions to thousands of speech and language pathologists nationwide about their own R sounds has confirmed these percentages but revealed that, in addition, a small number use both R's depending upon word position and adjacent vowels. These results reveal that it is normal to produce R either

way. It also suggests that therapists should feel free to teach both the Tip R and the Back R to their patients.

What makes the Back R seem more normal, or somehow better, is that the Back R configuration keeps the tongue closer to its neutral position. The *neutral position* is the posture assumed by the tongue when it is not engaged in movement. It has also been called the *resting posture* of the tongue. At rest or in neutral, the tongue lies low in the oral cavity. It fits neatly inside the upper dental arch. The upper surface of the tongue tip tends to articulate with the alveolar ridge, the sides tend to rest gently against the sides of the palate, and the middle and back of the tongue tend to rest low and away from the palate. Production of the Back R keeps the tongue closer to this neutral position than does the Tip R. The Back R is made by lifting and tensing the sides and middle with little displacement of the tip. The Tip R, however, pulls the tip up and far back away from the front of the mouth and toward the velum.

As such, the Back R can be incorporated into conversational speech and blends more easily, and it can be used in speech that is lightening fast. The Tip R, on the other hand, draws the tongue tip far away from its neutral position and into the back of the oral cavity. Its use necessitates a slightly slower rate of speech. It can be said, therefore, that the Back R is a more mature form of R from an oral-motor and speech rate perspective. And perhaps these things do make the Back R better. But not all people speak with the same level of articulatory precision and rate. Some people speak slowly and clumsily, while others speak quickly and with great precision. Both are within the normal range. What brings an R sound into the abnormal range is when it no longer sounds like an R. Whether the sound is made more slowly or more quickly is not an issue of concern in the practice of speech therapy as long as accuracy of sound is maintained.

The Consonantal and Vocalic R Sounds

Classic phonetic literature discriminated between two different kinds of R's: the *consonantal R* and the *vocalic R*.

EXERCISE 1.2

PRODUCE BOTH R'S

CAN YOU PRODUCE BOTH THE TIP R AND THE BACK R? TRY EACH ONE WHILE SAYING "ARE." SAY THE WORD SLOWLY EACH TIME. YOU WILL FEEL THE TONGUE TIP LIFT AND CURL BACK TOWARD THE VELUM IF YOU ARE USING A TIP R. IF YOU ARE USING A BACK R, YOU WILL FEEL ACTIVITY IN THE BACK OF YOUR TONGUE. IF YOU HABITUALLY USE A TIP R, YOU MAY HAVE DIFFICULTY PRODUCING "ARE" WITH A BACK R. ON THE OTHER HAND, IF YOU HABITUALLY DO A BACK R, YOU PROBABLY WILL HAVE NO PROBLEM USING A TIP R ON "ARE." THIS IS BECAUSE THE TIP R IS EASIER. IT IS MADE WITH A BIGGER MOVEMENT PATTERN THAT REQUIRES LITTLE REFINEMENT. THE WHOLE TONGUE ENGAGES IN ONE UPWARD AND BACKWARD SCOOP. THE BACK R REQUIRES MORE DIFFERENTIATION OF TONGUE CONTROL IN THE BACK. THE BACK R IS DIFFICULT TO LEARN IF IT DOES NOT COME NATURALLY.

CONSONANTAL R

The consonantal R, phonetically transcribed as /r/, occurs in the initial position of syllables and words. It presents as a consonant and it occurs before vowels. For example, the words *run* and *deride* each contain a consonantal R. The word *run* contains an R in the initial position of the word. The word *deride* contains an R in the middle of the word but in the opening position of its second syllable. The consonantal R also is used in mature consonant clusters. For example, the words *scratch*, *truck* and *drain* each contain a consonantal R. The consonantal R can be made with either the Tip R or the Back R.

VOCALIC R

The vocalic R occurs after a vowel and at the end of syllables and words. It is considered a *vocalic* or vowel-like sound. The words *car* and *argue* each contain a vocalic R. The word *car* contains a vocalic R in the final position of the entire word. The word *argue* contains a vocalic R in the final position of the first syllable of the word. Word-final and syllable-final consonant clusters also utilize vocalic R sounds. For example, the word *cars* contains a vocalic R. The vocalic R can be made with either the Tip R or the Back R. The vocalic R is transcribed as /ɜː/ and /ɝ/. The first is used in stressed syllables; the second in unstressed. However, due to the strong co-articulatory effects of the preceding vowel, the transcription of vocalic R is presented as a single phonetic unit with its preceding vowel. Thus, we have several different transcriptions and many different spellings of the vocalic R as listed below:

IPA SYMBOL	SPELLING	SAMPLE WORD
/ɜː/	er	term
	ir	sir
	ur	hurt
	or	word
	ear	earn
	our	courage
	yr	myrtle
	urr	hurry
	ere	were

IPA SYMBOL	SPELLING	SAMPLE WORD
/ɝ/	er	manner
	or	color
	ur	murmer
	ar	altar
	ir	elixir
	yr	martyr
	ure	figure
	ior	junior

IPA SYMBOL	SPELLING	SAMPLE WORD
/iə/	ear	dear
	eer	steer
	ere	here
	er	period
	ier	pier
	eir	weir
	ir	spirit

IPA SYMBOL	SPELLING	SAMPLE WORD
/oə/	ore	store
	or	for
	oor	door
	oar	oar
	our	court
	ar	warm
	eor	George

IPA SYMBOL	SPELLING	SAMPLE WORD
/eiə/	air	chair
	er	very
	err	merry
	ar	canary
	are	spare
	eir	their
	ere	there

IPA SYMBOL	SPELLING	SAMPLE WORD
/uə/	ure	pure
	our	tour

IPA SYMBOL	SPELLING	SAMPLE WORD
/ɑə/	ar	car
	ear	heart
	er	sergeant
	uar	guard

IPA SYMBOL	SPELLING	SAMPLE WORD
/ɑiə/	ire	fire
	igher	higher
	ir	environment

IPA SYMBOL	SPELLING	SAMPLE WORD
/ɑuə/	our	hour
	ower	power
/ɔiə/	oyer	foyer
	awyer	lawyer

Many therapists have been led to believe that the consonantal and vocalic forms of R comprise two different sounds. Some even believe that all the R sounds listed above are different sounds. This is confusing. What we need to understand about these sounds is that the oral movement necessary to achieve the correct acoustic quality or *resonance* of R is the same in each of these forms. What is different is what happens around the pure and essential R sound.

On-Gliding, Off-Gliding and Target Position

The real difference between the consonantal and vocalic forms of R lies in voicing as it occurs during the *on-glide* and *off-glide* movements of R. All phonemes including R are made in three basic sequential stages: an *on-glide*, a *target position* and an *off-glide*.

- *On-glide*: The on-glide is comprised of those movements that are made as the oral mechanism moves into position for the R sound. The tongue can on-glide with Tip R or Back R movements. Voicing while on-gliding into R makes it vocalic.

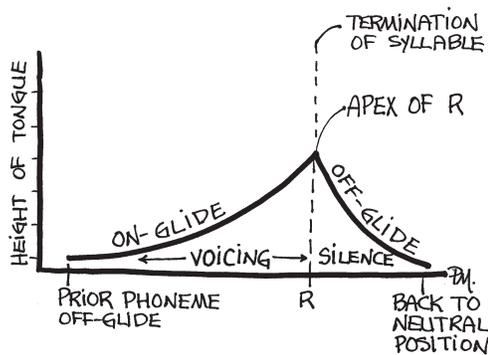
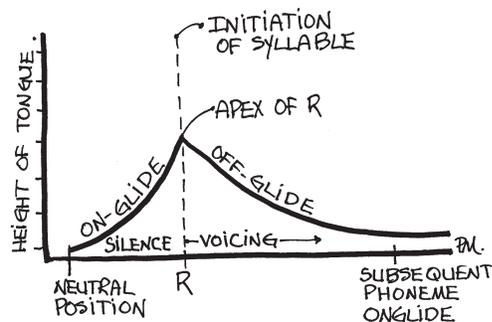


Fig. 1.6. Vocalic R is made by voicing during the on-glide and apex position. Devoicing occurs after the apex.

- *Off-glide*: The off-glide is comprised of those movements that are made as the oral mechanism moves away from the apex of R movement. The tongue off-glides from either the Tip R or Back R target position. Voicing while off-gliding away from R's target position makes it consonantal.

Fig. 1.7. Consonantal R is made by on-gliding in silence. Voice is initiated while the tongue is in the apex position, and it continues during the off-glide.



- Target Position:* The target position is the apex of speech movement for R. It is the place where the speaker switches from on-gliding to off-gliding. This is where the true acoustic quality or isolated R sound is heard. The isolated R is achieved by on-gliding and off-gliding in silence by voicing during target position. The tongue can employ either a Tip R or Back R position in its target position for the isolated R.

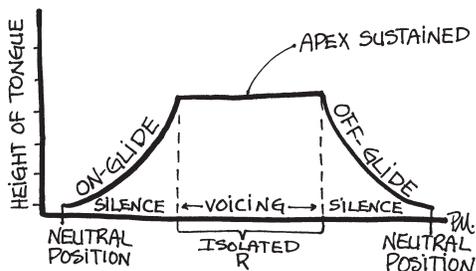


Fig. 1.8. Isolated R is made by on-gliding and off-gliding in silence. Voice is produced only while the apex position is held

EXERCISE 1.3

EXPERIMENT WITH THE VOCALIC R

THE VOCALIC R IS THE SOUND OF R THAT OCCURS DURING THE ON-GLIDE AND TARGET-POSITION PHASES. ITS OFF-GLIDE OCCURS IN SILENCE. SLOWLY SAY PEER, PAIR, PURR, PORE AND PAR ONE AT A TIME . NOTICE THAT VOICE IS PRODUCED ON THE VOWELS AND CONTINUES AS THE TONGUE GLIDES INTO POSITION FOR EACH R SOUND. NOTICE ALSO THAT VOICING TERMINATES WHILE THE TONGUE IS STILL IN TARGET POSITION FOR EACH R, AND THAT THE OFF-GLIDE IS MADE IN SILENCE.

EXERCISE 1.4

EXPERIMENT WITH THE CONSONANTAL R

THE CONSONANTAL R IS THE SOUND OF R THAT OCCURS DURING THE TARGET POSITION AND OFF-GLIDE PHASES. ITS ON-GLIDE OCCURS IN SILENCE. SLOWLY SAY READ, RID, RAID, RED, RAD, RUDE, ROOK, ROPE, RAW, ROB AND RUT ONE AT A TIME. NOTICE THAT TARGET POSITION FOR R IS ACHIEVED IN SILENCE, AND THAT VOICE IS INITIATED AFTER THE TONGUE ACHIEVES ITS TARGET POSITION FOR EACH R. ALSO NOTICE THAT VOICE CONTINUES AS THE TONGUE OFF-GLIDES FROM R AND MOVES INTO THE SUBSEQUENT VOWEL.

Why Be Concerned with On-gliding and Off-gliding Features?

It is critical that speech and language pathologists understand how the process of on-gliding and off-gliding impacts the production of the consonantal and vocalic forms of R for two reasons. First, difficult clients treat the vocalic and consonantal forms of R very differently. Any seasoned therapist can report that some clients learn initial-position R, some learn final-position R, others learn R in a certain blend and still others learn a correct R sound but then distort it by adding other sounds to it during the on-glide and off-glide phases. As we shall discuss, these are all on-glide and off-glide problems that need to be thoroughly understood and targeted in therapy.

The second reason that on-gliding and off-gliding is important to understand has to do with the natural acquisition of R by young children. Babies, toddlers and young preschool children do not tend to learn R in isolation. They learn it by experimenting with gliding oral movements produced while prolonging sound. We call this process *babbling*. Babies, toddlers and young children babble with vocalic sounds by prolonging vowels as they move the jaw, lips and tongue into various positions. The sounds of W, L, Y and R as well as all other vocalic speech and non-speech sounds are the result. These sounds are produced haphazardly throughout the babbling process. Children happen upon R while experimenting with sound this way. In fact, they learn all phonemes this way.

Just like the baby or toddler, it can be easier for our clients to learn R while experimenting with oral movements as they prolong vowel sounds. Learning to produce R in isolation by on-gliding and off-gliding in silence is very difficult. In fact, it can be impossible for many a client to understand how in the world he should position the tongue for R unless he has some other sound before or after it to help him understand his movements. The surrounding sounds help him perceive what his tongue is doing. Producing a correct R while simply holding the tongue in either a Tip R or Back R position is challenging, if not impossible, for almost every difficult client. Unfortunately, the traditional methods of articulation

therapy proposed that we teach phonemes in isolation first. This is a mistake for many R clients because it ignores the natural process of phoneme learning and the great difficulty one can have in understanding the isolated R position. Therapy to remediate R moves much more quickly when therapists understand the critical role that on-gliding and off-gliding play in treatment. This concept is imbedded throughout the treatment techniques proposed in this text.

– Summary –

- Correct production of the Standard English R sound is learned easily by millions of young children who are unaware that they are learning anything special.
- Correct pronunciation of the North American English R is so difficult to master that some English speakers fail to learn it and face a lifetime of whispered ridicule.
- The problem of the misarticulated R phoneme is considered a mild one that often goes untreated. However, an unwanted misarticulation of R can have a negative impact upon the speaker in terms of how others perceive him intellectually and socially and how he perceives himself. Misarticulation of R also can interfere with reading and spelling skills when problems in vowel and glide differentiation are present.
- The acoustic quality of R is very specific and is at the heart of all remediation techniques. Clients with R misarticulation have not made a distinction between the correct acoustic quality of R and their own misarticulation. Our job is to help them make this distinction.
- The oral movements patterns required to produce the Tip R and the Back R are very specific in terms of jaw, lip, tongue and velar position. The primary difference between Tip R and Back R lies in tongue position. The Tip R is made with a grand sweep of the tongue tip as it curls up and back toward the velum. The Back R is made by stabilizing the back-lateral margins of the tongue on the molars or palate while tensing the middle back toward but not touching the palate.
- Both the Tip R and the Back R are normal. Either is an excellent treatment option. Some speakers naturally use both the Tip R and the Back R depending upon phonetic context.
- The Tip R is an easier tongue movement pattern to acquire. It is used by approximately 40 percent of the normal adult population. The Back R is a more difficult oral movement to perceive, even by speakers who have already acquired the sound. However, it is used by approximately 60 percent of the normal adult population.
- The consonantal and vocalic productions of R are essentially the same sound. They are different by voice onset and termination.
- The consonantal R is the sound of R as it occurs at the beginning of a syllable. It is consonant-like. The consonantal R is written with only one IPA symbol: /r/. It is made with either a Tip R or a Back R.

- The vocalic R is the sound of R as it occurs at the end of a syllable after a vowel. It is vowel-like. The vocalic R is written with many different IPA symbols that depend upon the preceding vowel. Vocalic R is made with either a Tip R or a Back R.
- All phonemes are made with a sequence of three basic movements: the on-glide movements, the target position and the off-glide movements. The difference between the consonantal and vocalic R sounds lies in where voicing and devoicing occurs in this sequence. Isolated R is made while the tongue is held in its target position.
- Clients treat the consonantal R and the vocalic R sounds differently because of their on-glide and off-glide properties. An inability to learn both the consonantal and vocalic forms of R often is at the heart of the long-term persistent R misarticulation.



Understanding the Problem

The Misarticulations of R

Now that we understand how to make a correct R sound, we can begin to discuss its misarticulations. We shall describe these from a phonetic perspective and from an oral-motor one. Misarticulation of the R sound occurs in the same basic three ways that any phoneme is altered when affected by speech impairment. That is, by *omission*, *substitution*, or *distortion*. The following sections discuss common characteristics of these three error types and their occurrence in normal development. Introductory comments about the treatment approach for each are offered here. Particular attention is given regarding the R sound that is affected by distortion because that error is the most problematic and resistant to treatment.

Omission: A Lack of R

When a phoneme is omitted, it is left out altogether. When omission of R occurs, the client might say “ain” for *rain*, “ca” for *car* or “bown” for *brown*. Complete omission of R is observed in young children who have not acquired the sound yet. It also is common in older children with apraxia, dysarthria, severe articulation disorder and phonological delay. Complete omission of R is uncommon, however, when R is the client’s only error phoneme.

A complete omission of R is fairly easy to remediate because the client only has to learn new movement. He has no incorrect movements to unlearn. However, in today’s practice it is common to ignore a complete omission of R when speech is severely impaired. This is because the client usually has much more pressing and earlier developing phonemes to learn. I disagree with this approach. A better plan is to teach the client to substitute another sound for it. The substitute sound becomes a placeholder for R, a sound from which true R can later emerge.

Substitution: A Replacement for R

More common than the complete omission of R is its substitution. As the name suggests, a substitution occurs when one phoneme is used in place of another. The substitution of another phoneme for R is seen in normal speech development and in severe articulation disorder, as well as in cases of isolated R misarticulation. Consonants that are substituted

for the R consonant most commonly include the other glides—W, L and Y. Of these three, W is the most common in both normal development and in articulation disorder. However, other more unusual substitutions are observed in cases of severe articulation and phonological disorder. For example, D or Ng might be substituted for R.

The typical W-for-R substitution is so common in childhood development that it is viewed as a normal occurrence in early-developing speech patterns and it is classified as a *developmental error*. For example, when saying “I rode a red bike,” a typical three-year-old child might say, “I wode a wed bike.” People sometimes call this baby talk because it is the way very young children typically speak. In the speech and language literature, the term *labialization* is used for this error. Labialization refers to the substitute of a *labial* (lip) sound for a *lingual* (tongue) sound. A W-for-R substitution occurs because children have not learned the tongue movements necessary for R. They use similar lip movements instead. The W sound makes a good substitute for R for three reasons: (1) it is acoustically similar to R, (2) it is very easy to see, and (3) it can be made with very gross oral movements. The W-for-R substitution is a stop along the path of normal development. Most children are expected to make this stop. However, they should not stay there forever.

The W-for-R substitution that occurs in normal development is outgrown in most cases. If not, a short period of treatment may be necessary. The child with an isolated W-for-R substitution should be able to learn the correct tongue movement patterns necessary for R to emerge quickly and without much difficulty. Even without treatment, many children with a W-for-R substitution acquire R all by themselves during kindergarten or first grade. These children spend considerable time learning all the letters of the alphabet. Good teachers teach the sound each letter makes, and they help their students compare and contrast sounds so that they can discriminate them with greater skill. The child who has not been able to mature past the developmental W-for-R substitution by the end of kindergarten or first grade should receive treatment to help him get past it. It should be noted that this is current practice in many public schools. However, some school systems wait until these children are eight or nine years of age, and others do not treat R at all when it occurs in isolation.

Unlike the W-for-R substitution that is seen in normal development, the W-for-R substitution that occurs with severe speech, language or cognitive disorder may not be outgrown. Clients with severe speech and language disorder often fail to learn a variety of phonemes, including R even after years of treatment. Often it is necessary to allow these clients to continue their W-for-R substitutions into and throughout adulthood. If a severely speech-impaired client uses an uncommon sound as a substitute for R, it is best to train him to use the more common W-for-R substitution instead. This change improves his intelligibility considerably and ensures that more listeners will understand him. It also puts his error on the normal developmental path and allows for the possibility that he eventually will learn a true R.

Distortion: An R Poorly Made

While an omission is a lack of R, and a substitutions a replacement for R, a distortion is the result of bending or contorting the sound. The client with a distortion is in fact attempting

to say R, but he fails to achieve a correct acoustic quality because he cannot achieve the necessary on-glide, off-glide or target position for either the Tip R or the Back R. The client has been forced to rely on those movements he can do and those positions he can achieve instead of the correct ones. The client with an R distortion misshapes his mouth for the production of R and is unable to achieve the acoustic result he needs. A distortion of R is by far the most difficult pattern to change because the movement and auditory changes are quite subtle.

A distortion of R is not a developmental error, and it should not be treated as such. It is not a stop along the path of normal speech acquisition. It is an aberration, the result of employing an incorrect oral-movement pattern. To make a distorted R, a child veers off the normal developmental path onto a different one that takes his speech sound in the wrong direction. As such, he can never reach speech maturity because he is heading away from a normal R production. The distorted R is best treated as soon as possible in order to help the client return back to the normal developmental path. This can be done in many cases by teaching the client to make the classic W-for-R substitution. That simple change puts him back on track. From there, a correct R may emerge. If not, very specific treatment must ensue.

It is more difficult to alter an R distortion than it is to change an omission or substitution, because the child must do two things: He must relinquish an old movement pattern and learn a new one simultaneously. Treatment consists of inhibiting the habitual abnormal oral-movement pattern while facilitating a correct and eventually more advanced one. The distorted R pattern is not a minor error pattern, and therapy to correct it can be long term. The process can fail miserably if the client's aberrant oral-motor patterns are ignored or misunderstood. When good oral-motor techniques are included in treatment, however, therapy time can be reduced considerably—from years to months in most cases.

It is tempting to limit our discussion of R therapy in this book to those clients with an isolated R problem. However, the distortion of R occurs in a wide variety of clients, from those with a single phoneme error to those with severe articulation disorder. It is important that we discuss this complete range of possible errors. For the purposes of our discussion, clients with R distortion are organized into three basic categories: those with severe dysarthria, those with mild and perhaps unrecognized dysarthria and those with completely intact oral-motor skill.

Category 1: Distortion with Severe Dysarthria

Distortion of R can be due to a severe motor dysfunction and related oral-motor deficit. For example, the child with cerebral palsy typically has distortion of many sounds including R. Clients with generalized neuromuscular disorder have problems in all movements, including the movements of respiration, phonation, resonance, speech articulation, eating and swallowing. Their characteristic R distortion is the result of differences in muscular development, coordination, tone, oral-tactile sensitivity and basic awareness of oral movement. Dysarthria is the term we use to label speech that is distorted in this way. Thus, R is distorted just like most other phonemes when dysarthria is present.

When an R distortion occurs as a part of a severe neuromuscular disorder, the error is considered only one small part of the client's overall dysarthric pattern. Speech training should focus on general pronunciation and the prosodic elements of speech, including rate, intonation, volume, stress, and fluency. Treatment also should address overall oral-motor control for both speech and feeding. General pronunciation and specific phonemes should be targeted, yet activities designed specifically for R may or may not be included. Inclusion of R into treatment depends upon severity of dysarthria, general goals of treatment and expectations of progress during the period of treatment. The W-for-R substitution may be taught as a placeholder for the correct R that may or may not emerge later.

Category 2: Distortion with Mild Dysarthria

The second category of clients with R distortion is defined by those who have other subtle and frequently overlooked speech problems that can be classified as mild dysarthria. Chad is a perfect example of such a client.

CHAD

Chad was a seven-year-old boy who had no other learning problems other than articulation error. He was enrolled in a regular second-grade classroom where he functioned adequately. Chad was referred to me for help on the R sound on a consultative basis by his regular school-based therapist. The referring therapist reported that Chad's only error was on R. She explained that he could not be stimulated for correct production of R despite more than one year of treatment. When pressed for more information, the referring therapist admitted that he was "a little hard to understand." She assured me, however, that R was his only real error.

Upon examination, I found that Chad was hard to understand when he spoke on unfamiliar topics. His sibilants and L were interdentalized intermittently. He was somewhat hoarse, was aphonic at times and had nasal flaring with slight hypernasality. Chad distorted a variety of vowels slightly, and he omitted whole syllables here and there. He spoke slowly in a monotone and did not project his voice well. His R was distorted. Chad's lips moved asymmetrically throughout conversation, and the jaw appeared stiff and immobile during speech. Chad was quite hesitant to speak, but both his mother and the referring therapist reassured me that I was hearing Chad's typical speech patterns.

What is the difference between what I observed and that which the referring therapist reported? Chad's R distortion was the only "real error" noted by his referring therapist because that was all she was looking for. He had been referred to her initially for an error on R. She was attending to this and nothing else. This therapist was not trained to pay attention to the other minor and inconsistent errors on vowels and syllables that were present, even though these interfered with consistent intelligibility. She ignored his lack of pitch and loudness variations. She was unconcerned about inconsistent tongue-tip placement. She did not see the general oral-motor deficit, and she did not realize that R was a part of a much bigger problem. Chad's real problem was one of mild dysarthria, and his distortion of R was only one manifestation of it.

Chad's story illustrates that a distortion of R can be observed in clients who display other subtle deficits in articulation, voice, resonance and prosody. Generally, these kids

can articulate fairly well when they recite one word at a time, so their production of most phonemes may be quite good during an articulation test. Careful analysis of articulation during the demands of rapid conversational speech reveals, however, that their speech is sloppy or muffled. Parents report that these children are hard to understand and that they mumble when they talk. They are accused of not trying to say R correctly. Further, a “wet” or “slushy” quality may be reported due to excessive saliva accumulating in the mouth.

Careful analysis of articulation reveals that these children usually have one or more of the following additional speech patterns:

- Intermittent L distortion: tongue-tip placement varies, the blade may be used
- Intermittent sibilant distortion: midline air stream varies in position
- Intermittent lateralization on lingua-alveolar sounds—T, D, N, L, S, Z
- Slight distortion of other consonants
- Slight vowel distortion, especially on multisyllabic words
- Irregular and somewhat rapid rate: too fast for oral abilities
- Slightly poor volume control: somewhat too loud, quiet or irregular
- Aperiodic slight hypernasality: on the vowels, or as a syllable substitute
- Slight monotone or other intonation differences
- Aperiodic consonant cluster reduction
- Variations in the ability to retain syllables in multisyllabic words

The problems listed above that occur alongside an R distortion often are overlooked because most speech and language pathologists have not been taught to recognize mild dysarthria. Very little training has been offered regarding minor differences in prosody, resonance and rate, and inconsistent errors on consonants and vowels are treated as inconsequential. The popular notion is that these sounds are emerging and that the client’s speech is a little immature. Although it is true that these phonemes and prosodic features are emerging, they are *not* immature; they are different and distorted. Without this correct view, such a client’s R sound may be the only error considered for remediation because it is the only feature that draws his therapist’s attention. In fact, without the distortion of R, the child may not even be referred for evaluation nor qualify for treatment.

Why do these phoneme and prosodic errors go unrecognized? First, most speech and language pathologists have been trained to think first and foremost about blatant consonant errors. Minor and inconsistent errors on the vowels and the prosodic features usually are completely ignored. Second, slight distortion on most other consonants goes unnoticed because the range of acceptability for their production is quite broad. For example, even a severe distortion of B can be completely overlooked because it can be recognized as B and its distortion does not interfere with intelligibility. A phoneme like B has a broad *range of acceptability* and we accept many variations of this sound as correct and within the normal range. The R sound is very different, however. Even a slight distortion causes R to stand out as an error because its range of acceptability is quite narrow. There is only one good R sound. Beyond that, all else is distortion. This is what makes R so problematic in childhood.

Mild dysarthria is, in my experience, a very common occurrence in the population of clients with longterm persistent R distortion. Their dysarthria is very subtle in nature,

but significant enough to impact speech as described above. This is the client who seems resistant to R therapy because his distortion of R is a manifestation of his overall mild dysarthric pattern. Treatment that focuses solely on the production of R will be met with limited success in many of these cases because restricted oral-motor and speech skills inhibit the client's ability to learn R. He is not ready. The work is too subtle. Treatment for such a client must address prosodic elements, oral-motor skills, auditory discrimination of a wide range of speech features, vowels, R and any other consonants that are impacted. Working on R itself may be the foundation of the treatment program, and may be the reason the client is enrolled. But therapy may only succeed when the other aspects of the real problem are addressed.

Speech and language pathologists are asked to take a second, very discriminating look at their R clients to determine if any fit this category. Be very picky in this assessment, and do not gloss over minor characteristics that may seem unimportant at first glance. Document every type of error these clients make, and see the bigger picture. Your therapy will improve significantly when you do because it will address the specific causes of the R distortion. Further, these clients may qualify for treatment at a younger age with more thorough documentation of the entire problem.

Category 3: Distortion of R with No Oral-Motor Deficit

Distortion of R also can occur alone amidst an otherwise intact speech-production system. This third category is the one that bothers the greatest number of therapists. When R truly is the client's only speech sound distortion, it means that he simply has not figured out how to position the jaw, lips and tongue correctly for R alone. General oral-motor skills are good, prosodic features are well-developed and all other phonemes are well-formed. Intelligibility can be very high. This client simply has settled on incorrect oral movements or positions for R, and R is the only sound produced in an incorrect way. The client's incorrect oral-movement pattern for production of R is his habit. Treatment is designed to break this habit while establishing new correct movement patterns.

An inability to achieve R when it is the only speech error usually has one of two manifestations. Either the client cannot achieve a correct target position and can produce no correct R sounds, or the client has trouble with the gliding movements around R.

PROBLEMS WITH THE APEX OF MOVEMENT

The distortion of R with an otherwise intact speech production system can occur at the apex position itself, and the most common problem concerns a difference in how the back of the tongue is positioned during production of the Back R. As discussed in the last chapter, proper Back R is made as the back-lateral margins stabilize at the molars while the middle back tenses upward slightly without touching the palates. Clients who fit this category usually attempt R by positioning the tongue in the opposite way. They depress, lower or leave lax the back-lateral margins of the tongue, and they elevate the middle section of the back.

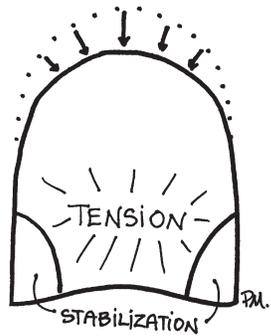
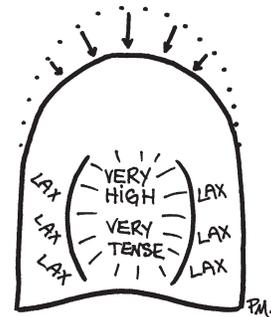


Fig. 2. Tongue position for the correct Back R. Notice that the back-lateral margins are high and stable and that the middle back is tense.

Fig. 2.1. Tongue position for the distorted Back R. Notice that the middle back is very high and the lateral back margins are low and lax.



This aberrant apex position causes the classic R distortion that an experienced therapist can recognize immediately as one that will not be outgrown once habituated. It is one of the most difficult of all the minor articulation errors to remediate because of the subtle oral-movement problem at its core. The difference between this position and that required for a perfect R sound can be nearly impossible to perceive for many clients. In fact, many speech and language pathologists even have difficulty perceiving this difference at first. The following exercise will help the reader understand this exceptionally common error.

EXERCISE 2.1

LEARN TO PRODUCE A CLASSIC BACK R DISTORTION

YOU CAN LEARN TO PRODUCE THE CLASSIC BACK R DISTORTION BY WORKING WITH THE LATERAL LISP. PRODUCE A BILATERAL LISP ON S. MAKE SURE YOU MAKE IT BY PRESSING THE MIDDLE OF YOUR TONGUE UP AGAINST THE PALATE. NOTICE THAT THE MIDDLE OF YOUR TONGUE IS PRESSING FIRMLY UPWARD AND THAT THE SIDES OF THE TONGUE ARE LOW. LOW SIDES ALLOW THE AIR STREAM TO ESCAPE Laterally. HOLD THIS POSITION FIRMLY SO YOU CAN FEEL THE ARTICULATION OF THE MIDDLE OF THE TONGUE AGAINST THE ROOF OF THE MOUTH WELL. NOW, LOWER THE OVERALL TONGUE POSITION SLIGHTLY AWAY FROM THE PALATE WHILE MAINTAINING THE STRONG UPWARD PUSH OF THE TONGUE'S MIDDLE. SAY R WITHOUT ALTERING THE POSITION. KEEP THE TONGUE'S MIDDLE HIGH. DO YOU HEAR THE SOUND THAT RESULTS? THIS IS THE CLASSIC DISTORTION OF R CAUSED BY ELEVATION OF THE TONGUE'S MIDDLE BACK WHILE THE SIDES REMAIN LOW.

EXERCISE 2.2ALTERNATE BETWEEN CORRECT BACK R AND THE
CLASSIC BACK R DISTORTION

[THIS EXERCISE CAN BE DONE ONLY IF YOU KNOW HOW TO PRODUCE A CORRECT BACK R AS WELL AS THE CLASSIC R DISTORTION DESCRIBED IN THE EXERCISE ABOVE.] PRODUCE A CORRECT BACK R AND THEN A CLASSIC BACK R DISTORTION. ALTERNATE THEM BACK AND FORTH. ATTEND TO THE DIFFERENCES OF POSITION AND TENSION IN THE BACK OF THE TONGUE.

The great tragedy of the Classic R Distortion is that many speech and language pathologists teach their clients to make a Back R by “lifting up the back of the tongue.” This is an incorrect description of the movement necessary to achieve the Back R. It may be an adequate description for easy clients, but it will end in disaster for the difficult ones. It will cause the Classic Distortion to occur! Correct articulation of the Back R is made through differential control of the middle back from the lateral backs of the tongue. With a gross description to “lift the back of the tongue,” the difficult client usually does one of two things. He either lifts the entire back of the tongue or he lifts the middle back alone. Either will cause distortion. A client who has not developed the back of the tongue will continue to lift

the back to no avail and his therapy will end in failure. This client needs to be taught how to differentially control the middle from side backs. To make a Back R, the client needs to learn to stabilize the back-lateral margins, and then to elevate and tense the middle at the same time. Or he needs to learn a Tip R.

PROBLEMS WITH ON-GLIDE AND OFF-GLIDE MOVEMENTS

Many longterm R clients actually can achieve correct apex position for R and can pronounce an adequate R sound with either a Tip R or a Back R position. The problem is that their phoneme continues to sound distorted because the movements required for the on-glide or off-glide are incorrect. Improper on-glide or off-glide movements cause other sounds to be added around the basic R sound. These other sounds cause R to sound distorted, although the correct acoustic quality of R is present in the utterance. Referring therapists usually describe these clients in the following ways:

- “He can say R—at least, I think he’s saying it okay.”
- “He does funny things.”
- “He’s doing something wrong.”
- “It doesn’t always sound good.”
- “I don’t know if I’m hearing it right.”
- “He’s just not getting anywhere.”
- “He says some things right, but not always.”

The referring therapist is trying to say that she hears an acoustically correct R sound buried in the midst of distortion caused by incorrect on-glide and off-glide movements. She also means that the acceptability of the sound varies from one trial to the next, depending upon what the client actually does during each individual gliding movement. These gliding alterations are always idiosyncratic ones. In fact, there probably are as many ways to distort the on-glide or off-glide of R as there are clients who do this. However, several patterns are noted most frequently:

- *Adding Labial Stridency:* Some client produce a V-like sound just before, just after or simultaneously with a correct R. The result is a V-and-R sound for R. For example, a client might produce *radio* as *vradio* or *rvadio*. These could be classified as a VR-for-R or an RV-for-R substitution, but the overall acoustic effect is more one of distortion than substitution. The client is adding inappropriate labio-dental movement and stridency to the on-glide or off-glide of R.
- *Adding Labial Gliding:* Some clients produce a W-like sound just after a correct R. The result is a RW sound for R. For example, the client might produce *run* as *rwun*. The client is adding inappropriate labial movement to the off-glide. Often this is a stage that occurs after the classic W-for-R substitution and before true R is settled. Although minor in scope, many clients get stuck with this pattern if it is not addressed directly, and the result is lifelong unusual R distortion.

- *Adding Liquid Gliding to the Off-glide:* Many clients produce an L-like sound on the off-glide after producing an acoustically correct R sound. For example, a client might produce *rabbit* as *rlabbit*. Usually these clients can produce a decent R in the final position but cannot produce R without this added sound in the initial position because the error occurs on the off-glide. The added sound is not usually a true L sound. Instead, it too is a distortion and often a flop. As a result, the listener's ear picks up this error as a distortion to the basic R sound, but it is not. It is a distorted L sound that has been added to R's off-glide, and that is embedded between R and the following vowel.

These are the most common distortions of R encountered on a regular basis, but there are other odd differences that appear in individual cases. Distortion errors are the result of unstable or incorrect jaw, lip or tongue movements and positions. The speech and language pathologist must be vigilant in listening to these distortions in order to hear them correctly. And she must carefully study the oral movements made during production of the error in order to determine what the incorrect movements are and whether they are added to the on-glide, the off-glide or the apex of speech movement.

A Continuum of R Distortion

It is proposed that the longterm persistent R distortion occurs on a continuum of oral-motor deficit. On one end of this continuum are those clients with pervasive severe neuromuscular dysfunction. At the other end are clients with no obvious oral-motor deficit. Between these extremes are those clients who demonstrate R distortion as one part of mild dysarthria. My clinical experiences in almost three decades of therapy have taught me that the numbers of clients in each category are spread over the classic bell-shaped curve, with most clients scoring in the middle category. The diagram below summarizes this idea. Please realize that this diagram represents the oral-motor deficits found in clients with persistent R distortion and not those with substitution or omission. Also please recognize that this is an impression formed after thirty years of clinical study.

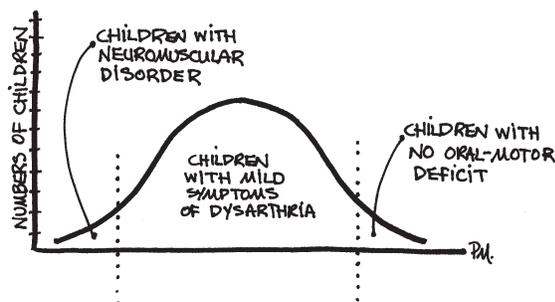


Fig. 2.2 Distortion of R appears to occur on a continuum of oral-motor deficit.

A Deeper View of Oral Movement

Any distortion of R is the result of absent, problematic or poorly-timed jaw, lip, tongue or velar movements. These are the problems that are seen in clients with R distortion, and these are the things that need fixing in successful R therapy. An exercise designed to help readers understand these concepts is included in each section below. All these factors are taken into consideration as we discuss treatment techniques in subsequent chapters.

The Jaw's Impact on R

From its hinge at the temporomandibular joint, the jaw is designed to move in the following ways: up, down, left, right, forward, back and in rotation in all directions. For speech, it moves subtly in all these directions, but stays relatively high near the neutral position so that the tongue can make consistent contact with the palate and the lips can approximate together. The neutral position of the jaw is its position at rest. At rest, the lips are closed, giving the appearance that the upper and lower teeth are touching. This is not true. In the neutral position at rest, the jaw sits slightly low so that the upper and lower molars are near one another but not touching. The jaw moves in a finely graded and restricted range around this position for speech.

Traditional articulation evaluation and treatment procedures pay almost no attention to jaw movement problems in speech sound error, including errors on R. However, my observations of oral-motor skills in hundreds of clients with longterm persistent R distortion have revealed that jaw movement and position often is incorrect, and that these differences can contribute significantly to R distortion. The following are noted:

- The jaw may be positioned too high or low in target position for R.
- The jaw may fail to stabilize appropriately to accommodate good tongue position for R.
- The jaw may lateralize, protrude or retract during the on-glide or off-glide phases of R.
- Jaw movements may be poorly synchronized with lip, tongue or velar movements.
- Jaw movements may be too gross to accommodate the refined tongue movements needed for R.
- In cases of severe neuromuscular disorder with spasticity, the jaw may be nearly immobile during speech.

Each of these movement differences cause R to be distorted unless other parts of the oral mechanism compensate for them. Successful R therapy includes procedures to analyze and treat incorrect jaw movements during production of the sound in various speech contexts. The following exercise is designed to bring clarity on these patterns.

EXERCISE 2.3

DISCOVER THE EFFECTS OF JAW POSITION ON R PRODUCTION

PROLONG AN ISOLATED R FOR FIFTEEN SECONDS WHILE MOVING THE JAW INTO UNDESIRABLE POSITIONS. LISTEN TO THE ACOUSTIC CHANGES ON R THAT RESULT. FOR EXAMPLE, MOVE THE JAW UPWARD SO HIGH THAT THE MOUTH ACTUALLY CLOSES. THEN MOVE IT DOWNWARD AS FAR AS IT WILL GO SO THAT THE MOUTH IS FULLY OPEN. MOVE THE JAW FAR TO THE LEFT AND RIGHT, AND THEN PROTRUDE AND RETRACT IT AS FAR AS YOU CAN.

WHAT HAPPENS TO THE ACOUSTIC QUALITY OF R AS YOU MAKE THESE HEIGHT AND ALIGNMENT CHANGES IN YOUR JAW POSITION? YOU SHOULD DISCOVER THAT THE ACOUSTIC QUALITY OF R CHANGES OR DISTORTS. THE CHANGE MIGHT BE SLIGHT, MODERATE OR SEVERE, DEPENDING ON HOW MUCH YOUR TONGUE AND LIP POSITIONS CHANGE WITH THE JAW POSITION DIFFERENCE. EXPERIMENT WITH THESE INAPPROPRIATE MOVEMENTS FOR A FEW MOMENTS UNTIL YOU ARE SURE YOU HEAR THE CHANGES. THEN FOCUS ON THE POSITION YOUR JAW ASSUMES WHEN YOU SPEAK YOUR “PERFECT R.”

The Lips’ Impact on R

The lips round, retract, separate and come back together during speech. During production of R, the lips sometimes round and sometimes retract slightly depending upon how the jaw and tongue are placed. The lips help shape the sound of R once the jaw and tongue position are set. When R is distorted, lip position often is poorly coordinated with jaw and tongue movements. Sometimes just the slightest change to lip position will help the acoustic quality of R to snap into position. Successful R therapy includes techniques to position the lips to advantage for good R resonance. The following exercise is designed to bring clarity on this idea.

EXERCISE 2.4

DISCOVER THE EFFECTS OF LIP POSITION ON R PRODUCTIONS

PRODUCE AN ISOLATED R IN THE TIP OR BACK POSITION, AND PROLONG IT WHILE YOU ALTER LIP POSITION. PUCKER THE LIPS FORWARD SLIGHTLY, AND THEN PUCKER THEM FIRMLY SO THAT THE LIPS NEARLY CLOSE. WHAT HAPPENS TO YOUR R? NOW, RETRACT THE LIPS ALL

THE WAY BACK INTO A TIGHT SMILING POSITION. HOW IS R DIFFERENT NOW? ALSO, PROLONG AN ISOLATED R AS YOU LIFT THE UPPER LIP INTO A SNEER AND WHEN YOU LOWER THE BOTTOM LIP AWAY FROM THE TEETH.

HOW DOES THE ACOUSTIC QUALITY OF R CHANGE AS YOUR LIP POSITIONS CHANGE? DOES IT CHANGE IN EACH CASE? DO YOU FEEL THE ASSOCIATED CHANGES IN TONGUE POSITION THAT OCCUR AS YOU ALTER LIP POSITION AND TENSION? CAN YOU HEAR THE DISTORTION THAT OCCURS AS A RESULT? TRAIN YOUR EAR TO IDENTIFY THE SOMETIMES SLIGHT, SOMETIMES DRASTIC ALTERATIONS IN SOUND QUALITY THAT OCCUR AS LIP POSITION CHANGES.

The Tongue's Impact on Tip R and Back R

While jaw and lip position are important for correct R production, the most critical oral movements involve tongue position. Most clients with longterm persistent R distortion have great difficulty getting the tongue into a correct position, and this is the very thing that prevents them from attaining an adequate R. Both the Tip R and the Back R become significantly distorted when the tongue does not achieve its correct position. Thus, successful articulation therapy for a correct R focuses significant attention on movement and position of the tongue. The following exercises are designed to bring clarity on this foundational idea.

EXERCISE 2.5

DISCOVER THE EFFECT OF TONGUE POSITION CHANGES ON TIP R

PROLONG AN ISOLATED R SOUND USING THE TIP R POSITION. THEN ALTER THE TONGUE IN SEVERAL WAYS AND NOTE THE ACOUSTIC CHANGES:

1. PREVENT THE TIP FROM GOING HIGH ENOUGH.
2. MAKE THE TIP GO UP IN THE FRONT BUT FAIL TO SCOOP BACK.
3. MAKE THE TIP ELEVATE TOWARD ONE SIDE OR THE OTHER IN THE BACK.
4. CURL THE TIP DOWN INSTEAD OF UP.
5. CURL THE TIP UPWARD OUTSIDE THE MOUTH.
6. CURL THE TIP UP, BUT ALLOW THE TONGUE TO BE LAX.
7. MAKE THE TIP GO TOO HIGH AND TOO FAR BACK INTO THE OROPHARYNX.
8. LIFT THE MIDDLE OF THE TONGUE ALONG WITH THE TIP.

EXERCISE 2.6

DISCOVER THE EFFECT OF TONGUE POSITION CHANGES ON BACK R PRODUCTIONS

PROLONG AN ISOLATED R SOUND USING THE BACK R POSITION. THEN EXPERIMENT WITH THE FOLLOWING POSITION CHANGES AND NOTE THE ACOUSTIC RESULTS:

1. MAKE THE LATERAL BACKS GO TOO HIGH.
2. DO NOT LIFT THE LATERAL MARGINS HIGH ENOUGH.
3. ELEVATE THE MIDDLE BACK TOO HIGH.
4. ASSUME A CORRECT POSITION, BUT ALLOW THE TONGUE TO BE TOO LAX.

The Velum's Impact on R

Phoneme R becomes severely distorted when upward movement of the velum is absent or inadequate in some way, or when movement of the velum is poorly synchronized with jaw, lip and tongue movements. These errors cause sound to escape through the nasal passageways with resultant hypernasality on R. Successful R therapy always includes procedures to diagnose and treat velar movement problems when hypernasality is present. Adequate control of the velum for differential oral and nasal production of sound is critical for successful R production. Therefore, it needs to be carefully considered.

EXERCISE 2.7

DISCOVER THE EFFECT OF VELOPHARYNGEAL CHANGE ON R PRODUCTION

IT IS DIFFICULT TO ALTER VELAR POSITION PURPOSEFULLY, BUT YOU CAN DO SO WITH A LITTLE INSTRUCTION. FIRST, SAY THE NG SOUND AS IN THE WORD *SING*. THIS SOUND WILL DRIVE YOUR VOICE THROUGH THE NOSE. NOW SAY AN ISOLATED R SOUND IN THE SAME WAY, WITH THE VELUM LOWERED AND THE SOUND DRIVING THROUGH YOUR NOSE. THE SOUND YOU MAKE SHOULD NOT BE MUCH DIFFERENT FROM NG. THIS IS THE DISTORTION OF R THAT IS HEARD WHEN THE VELAR MECHANISM IS IMPACTED BY NEUROMUSCULAR DISORDER OR VELOPHARYNGEAL INADEQUACY. IT ALSO IS HEARD AMONG SOME CLIENTS PURELY AS A HABITUAL PRODUCTION PATTERN WHEN THE VELOPHARYNGEAL MECHANISM FUNCTIONS PERFECTLY WELL.

Other Movement Impacts on R

We have described the primary movement problems associated with R distortion. However, there are a few others that are noted occasionally. Try these yourself. They include:

- Inhalation instead of exhalation during R production
- Production of a voiceless instead of a voiced sound during R production
- Production of a velar fricative for R while in correct position
- Production of a lateral velar fricative for R while in correct position

Make It Just Right

A correct production of R occurs when oral movements and positions are just right. The essential oral-motor patterns are the same for all speakers, although the size and shape of each individual mouth and its component parts will dictate slight changes here and there. We could make an analogy to the hand to explain this difference. Take the movements necessary to make a fist, for example. No two fists will look exactly the same, because every person's hand is shaped a little differently from everyone else. But the basic movement patterns needed to move into the fist position and the final position itself will be essentially the same for every person. In production of R, a wide mouth with a low palate requires an oral position that may be slightly different than that needed for a narrow mouth with a high palate. However, the essential movements and positions needed to produce R are the same for all speakers. Only a severe structural difference due to malformation, disease or injury would necessitate an oral-movement position that was completely different than the norm.

Clients rely upon us to help them discern and produce a correct R phoneme. Therefore, all speech and language pathologists should take time to work through the exercises in this chapter so that subtle variations on R can be learned. The exercises in this chapter may be difficult for some readers to do at first. With time and practice, however, most therapists will be able to control the fine differences in jaw, lip, tongue and velar movements that result in distortion. Practice with the exercises will help the reader learn to hear the correct acoustic quality of the perfect R sound, and to discriminate between it and all other variations. These skills are necessary for remediation of R. Without it, the professional speech and language pathologist will be completely lacking in the very skills that are the basis of remediation. One can further enrich this experience by practicing all the incorrect R sounds produced by clients, ESL speakers and little children who are learning R. I do this. I never pass up an opportunity to imitate an R that is slightly outside of the range of normal. Such work broadens one's direct experience with R and helps at all levels of treatment.

– Summary –

- Problems with the R sound occur in three basic ways: by omission, substitution, or distortion.
- Omission and substitution of R are the most common forms of misarticulation in normal development. They are the easiest to change because there are no incorrect oral-motor patterns to alter.
- The W-for-R substitution is so common in speech sound acquisition that it is expected amongst young children and is classified as a developmental error. The W-for-R substitution is a stop on the path of normal development.
- The distorted R is a deviant pattern that is the most difficult one to change. It represents a deviation from the normal path. This is the R that is most resistant to remediation because incorrect oral-movement patterns must be inhibited while new patterns are acquired.
- Clients with R distortion come in three basic types: those with severe, those with mild, and those with no oral-motor dysfunction. It is proposed that these three types occur on a continuum from mild-to-severe oral-motor dysfunction.
- The distortion of R is caused by incorrect jaw, lip, tongue or velar movements and positions. Some distortions are the result of sound being added to the basic R sound.
- Phoneme R is made correctly only when jaw, lip, tongue and velar movements are just right. These positions are the same generally for all people. However, slight variations are noted as size and shape of the oral mechanism differ from person to person.
- Speech and language pathologists should become proficient in identifying how alterations in jaw, lip, tongue and velar movements change the acoustic quality of the R sound. The ability to understand oral movement to a high level of skill is required for the professional speech and language pathologist to be effective in treatment of R misarticulation.



Assessing the Details

A Deep View of R Misarticulation

The course of treatment for the misarticulated R begins, of course, with assessment. The purpose of the assessment is to identify the problem, pinpoint possible causes and design an initial treatment plan. This is the time to dig deeply into the cause and nature of the misarticulated R so that the client's time in treatment can be maximized. An assessment of R should include at least the following:

- Background investigation
- Conversational speech sample
- Articulation testing
- Imitation of the distortion
- Examination of oral structure
- Examination of oral-motor skills
- Production of the “very best” R
- Response to selected treatment techniques
- Discussion of purpose
- Commitment to therapy

Each of these components is described below along with introductory suggestions about treatment. Greater discussion of treatment techniques will continue in the next and subsequent chapters.

The Background Investigation

The goal of the background investigation is to identify factors that have contributed to or that still may be contributing to the R problem. The background check should include standard questions about speech, language and general development, including cognitive development. It also should explore issues regarding hearing, illness, hospitalization, surgery, education and family background. Specific attention should be given to history of speech, language or feeding delay, prior speech-therapy services, and medical issues related to the mouth, e.g., surgery, orthodontia, velopharyngeal concerns, and so forth. Questions also

should be asked about past or present oral habits, such as thumb or pacifier sucking, and attempts to reduce or eliminate them. The background assessment allows the speech and language pathologist to understand how the problematic R fits into the client's overall life situation. This broad view helps determine the course of treatment. Background information is put together with other data to make decisions regarding the plan of treatment and its projected outcome. Specific examples of background influences on the treatment of R are described in the case studies presented in chapter 4.

Conversational Speech Sample

The conversational speech sample is one of the most important aspects of the entire initial examination. Much useful information can be gained, including data on articulation, voice, prosody, and intelligibility. A general dialogue also is used to build rapport between therapist and client. The examiner should lead the conversation into areas of interest for the client so that he will begin to think more about what he is saying and less about how he is saying it. If the client appears to be trying to produce his best R during the talk, ask him to relax and not to try so hard. Ask him to speak the way he always does with his friends when he is not trying to sound better. Let him know that you do not care how he sounds during this first meeting. Tell him that you want to hear his natural speech. The average client will begin to show you his habitual speech sometime during the session. Shy or self-conscious clients may not open up and speak freely for some time, so do not fret if you do not get this perspective right away. But make sure you get it sometime early in treatment. Begin to take note of overall speaking skill once the client demonstrates a fairly natural speech pattern. Ask the client to tell you his name, address and phone number, etc., as a way to hear his natural speech before he is ready to open up. Also, ask him to count to fifty and recite the alphabet. These are simple ways to get a spontaneous speech sample without having a real conversation.

- *Articulation:* Use the conversational speech sample to determine if R is the only problem or if there are errors on other sounds. Be very picky in this regard. Pay particular attention to the client's production of the other glides and the vowels. Note even slight deviations on any of them. Also note minor deviations on other consonants, and carefully watch for signs of interdentalization and lateralization. Determine if R is the only deviated phoneme or if there is a broader problem. Subtle differences on other sounds are very important when assessing an R problem. Be quite honest with yourself and ask, "Am I hearing only an R problem, or is there more to this?"
- *Voice and Prosody:* Observe pitch, quality, resonance, strength, intensity and duration of voice during conversation. Also observe rate, rhythm, stress and intonation. Does the child seem to talk too fast for his articulation ability? Does he sound jerky or aphonic? Is he hyper- or hyponasal? Is he struggling to be loud enough, or is he too loud for the situation? Does he produce a glottal fry on R?
- *Intelligibility:* Pay particular attention to the client's ability to attain and maintain intelligibility in rapid conversation. Do you find yourself having to listen hard to understand him at times? Do consonants or vowels disappear or change periodically?

Do blends reduce intermittently? Do syllables drop out at times? Is intelligibility consistent, or does it fluctuate? Does the child mumble? Does he sound muffled? Is he sloppy? Could you understand him if there was other noise or conversation in the room? How would he sound if he were standing in front of a class and speaking this way? Would this be good oration?

Articulation Test

Formal articulation testing is initiated in order to specify phoneme errors made on word productions. Words can be elicited by spontaneous means or through imitations. For spontaneous productions consider using picture- or object-naming tasks, answers to questions or fill-in-the-blank statements.

COMPLETE ASSESSMENT

A complete assessment of articulation skill is necessary when conversational speech sampling reveals deviations in other phonemes besides R. The complete assessment will help identify all present speech sound errors, including that on R. Any standard articulation test, whether professionally published or homemade, will do. Make sure to test the vowels and diphthongs as well as all the consonants and clusters. Identify any and all deviations however slight, and note how the sounds are deviated and to what degree. For example, mark an interdentalized sibilant as such, and do not simply mark it as D for “distorted.” Such detail will help determine your course of treatment.

PARTIAL ASSESSMENT

A partial assessment may be sufficient if initial conversational speech sampling has revealed that R truly is the only error phoneme. Partial assessments can be used freely when working with older children who obviously have an otherwise intact expressive speech sound system. Be warned: Time and again, slight problems on other phonemes will be discovered later in therapy when the initial complete articulation assessment is omitted. Remember that most children, even older ones, with a longterm persistent R distortion usually have subtle errors on other phonemes. A partial assessment may not reveal these.

DEEP TEST

After the complete or partial assessment of articulation ability has been completed, it is important to go one step further to understand the nature of the R problem by initiating a deep test. The purpose of the deep test of R is to give the examiner time to hear the client’s R in a wide variety of speech contexts. Ask the client to name pictures or imitate words that contain R in the initial, medial and final position of words, before and after most of the vowels and diphthongs, and in blends. The goal of the deep test is to determine how R is treated in a wide variety of coarticulated conditions. Determine whether R is omitted, substituted or distorted in each. Pay very careful attention if R is pronounced correctly in some contexts and incorrectly in others. Correct productions, if any, will comprise the beginning points in treatment. Make it your mission to find them! Without them, treatment begins from scratch. The tables below offer several good sets of words for deep testing.

The reader will observe that there are dozens of words that could be tested in the deep-test analysis. Producing such a great number of such words when R clearly is in error can be embarrassing to a client during an assessment. Since it is more important to establish rapport than it is to completely test the R misarticulation early in treatment, it is not important that all these words be tested during the first session. The intake examiner simply can spot check a few selected words to gain an overview of the errors. Then the deep-test words can be spread casually over the first several weeks of therapy. This will masquerade the test and make it seem less confrontational or embarrassing.

SAMPLE WORDS TO TEST CONSONANTAL R

/ri/	reap, reach
/rɪ/	rid, rich
/re/	rate, raven
/rɛ/	red, rend
/ræ/	rat, racoon
/ru/	room, roost
/rʊ/	rook, roof
/rɒ/	rope, Rome
/rɔ/	raw, raucous
/rɑ/	rock, rod
/rʌ/	rug, rum

SAMPLE WORDS TO TEST VOCALIC R

/ɜ-/	term
/ə-/	utter
/iə-/	tear
/uə-/	tour
/oə-/	store
/ɑə-/	star
/aɪə-/	tire
/aʊə-/	tower
/ɔɪə-/	foyer
/eɪə-/	stair

SAMPLE WORDS TO TEST CONSONANTAL R IN BLENDS

/pr/	prove, pride
/br/	brown, brave
/tr/	truck, train
/dr/	drum, dream
/kr/	crack, cream

/gr/	green, grass
/str/	street, strike
/skr/	scratch, scream
/jr/	shriek, shred
/θr/	throw, thrash

SAMPLE WORDS TO TEST VOCALIC R IN BLENDS

<i>vocalic R blend</i>	<i>word samples</i>
with /m/	term, form, farm
with /n/	burn, barn, born
with /l/	curl, girl, world
with /s/	purse, horse, tires
with /z/	doors, purrs, cars
with /p/	warp, chirp, carp
with /b/	orb, perturb, “carb”
with /t/	hurt, abort, cart
with /d/	word, Ford, bard
with /k/	park, Turk, pork
with /g/	iceberg, Pittsburgh
with /dʒ/	purge, George, large
with /st/	burst, first
with /θ/	Garth, earth

Very Best R

Further information is gained about a client’s production of R when we ask him to produce his very best R. We ask our client to make this sound after we have gained a sample of the R sound that he habitually uses in conversational speech. We want to see what he does when he’s really trying to perform his best. This step is especially necessary when a client has been in prior speech therapy and phoneme R was addressed. The best production will reveal what the client has been taught in prior therapies. It will inform us whether prior therapy was geared toward a Tip R or a Back R, and whether it tended toward a Consonantal R or a Vocalic R. It also will reveal whether these aspects of R production even were considered in therapy.

The production of the very best R also shows us what the client thinks he is supposed to do, and it lets us see how much control he actually has over his speech mechanism. The client’s prior experiences become even more apparent when we ask him to explain to us what he is doing to make his very best R sound. The vocabulary he uses and the description he makes lets us know how much he actually knows about his problem and the ways to fix it.

Therapy fails when we try to add new patterns on top of old bad habits learned during years of unproductive R therapy. These problems will be revealed when a client is asked to produce his very best R. Some clients have been asked to try so many different ways

to achieve an R sound that all the methods they have been introduced to have become a jumble in their minds. Adding new techniques on top of this mess only makes the situation worse. Ideally, we search for the original mistake the client was making before he tried to change it. This is not to say that all prior therapy was bad. But the essence of designing a good treatment program is to provide exactly what the client needs. You want to eliminate those habits and patterns that don't contribute to positive growth. Usually this means getting down to the original error. The original error demonstrates the actual trouble the client had in learning R in the first place.

Imitation of the Distortion

The diagnosis of an R distortion includes procedures for determining exactly what the client is doing wrong. Because it is almost impossible to see inside the mouth during R production, the best way to accomplish this is for the therapist to imitate the client's incorrect production. The imitation of the client's distorted R allows the examiner to feel the movement and position problem. In my work with practicing therapists across North America, I have found few who utilize this type of assessment. When asked, "Can you make the sound just as your client does?" most therapists respond that they cannot. This is a shame. An imitation of the client's incorrect production is an extremely useful part of assessment. It instructs the examining therapist precisely about what the client is doing wrong. It can be more valuable than any other piece of the assessment.

Imitating the client exactly can be difficult to do. In fact, it can be as hard for us to imitate a client's incorrect production as it is for him to imitate our correct one. But time spent trying to imitate the client exactly is well worth the effort. To do so, one must develop enough oral skill to mimic a wide variety of incorrect R sounds. Perhaps the easiest way to imitate a client is to do so in a synchronistic manner. This means to produce an R while the client does. Ask the client to prolong his sound. This allows you time to hear it and play around with your own sound to find the match. This can take a while because there are about as many ways to distort R as there are clients who distort it. Each client seems to have his own idiosyncratic or signature distortion.

An exact imitation of a client's distortion may be unobtainable during the first treatment session. But the skill can come outside of therapy while practicing alone if you have paid very close attention and can recall the sound later. Play with various ways of producing the R sound until you chance upon the one the client produces. Then repeat that sound until you master it. Then begin to bend the sound ever so slightly from that position until you reach an acoustically correct one. This experimentation will teach you a great deal about training your client.

Please note that being able to produce an exact copy of a client's incorrect production is not a prerequisite to therapy. One can still proceed without it. In fact, sometimes clients make oral movements in such unusual ways that it is impossible for us to replicate their R distortion for some time. It can take weeks to figure out how a particular client is making his distorted R sound. In such cases, one can move ahead, but the drive to understand the client's misarticulation through imitation of him should not stop. Eventually the sound will be analyzed correctly. The oral-movement problem becomes suddenly clear. The treatment