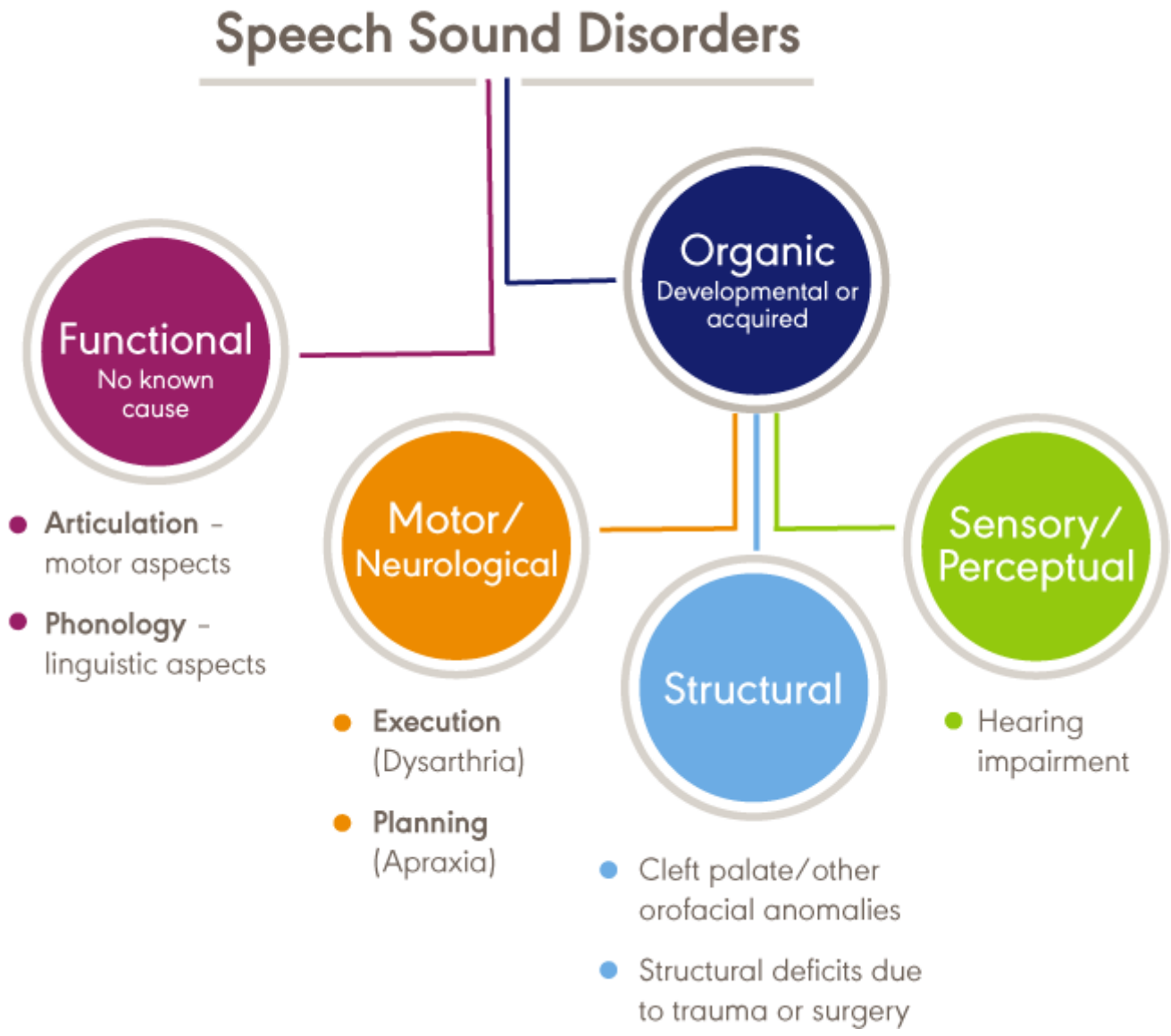
## Speech Sound Disorders

**Speech sound disorders** is an umbrella term referring to any difficulty or combination of difficulties with perception, motor production, or phonological representation of speech sounds and speech segments—including phonotactic rules governing permissible speech sound sequences in a language.

Speech sound disorders can be organic or functional in nature. **Organic speech sound disorders** result from an underlying motor/neurological, structural, or sensory/perceptual cause. **Functional speech sound disorders** are idiopathic—they have no known cause. See figure below.




## Organic Speech Sound Disorders

**Organic speech sound disorders** include those resulting from **motor/neurological disorders** (e.g., childhood apraxia of speech and dysarthria), **structural abnormalities** (e.g.,

cleft lip/palate and other structural deficits or anomalies), and **sensory/perceptual disorders** (e.g., hearing loss).

**Functional Speech Sound Disorders**

**Functional speech sound disorders** include those related to the motor production of speech sounds and those related to the linguistic aspects of speech production. Historically, these disorders are referred to as **articulation disorders** and **phonological disorders**, respectively. **Articulation disorders** focus on errors (e.g., distortions and substitutions) in production of individual speech sounds. **Phonological disorders** focus on predictable, rule-based errors (e.g., fronting, stopping, and final consonant deletion) that affect more than one sound. It is often difficult to cleanly differentiate between articulation and phonological disorders; therefore, many researchers and clinicians prefer to use the broader term, "speech sound disorder," when referring to speech errors of unknown cause.

## SIGNS AND SYMPTOMS

Signs and symptoms of functional speech sound disorders include the following:

- **omissions/deletions**—certain sounds are omitted or deleted (e.g., "cu" for "cup" and "poon" for "spoon")
- **substitutions**—one or more sounds are substituted, which may result in loss of phonemic contrast (e.g., "thing" for "sing" and "wabbit" for "rabbit")
- **additions**—one or more extra sounds are added or inserted into a word (e.g., "buhlack" for "black")
- **distortions**—sounds are altered or changed (e.g., a lateral "s")
- **syllable-level errors**—weak syllables are deleted (e.g., "tephone" for "telephone")

Signs and symptoms may occur as independent articulation errors or as phonological rule-based error patterns . In addition to these common rule-based error patterns, idiosyncratic error patterns can also occur. For example, a child might substitute many sounds with a favorite or default sound, resulting in a considerable number of homonyms (e.g., *shore*, *sore*, *chore*, and *tore* might all be pronounced as *door*; Grunwell, 1987; Williams, 2003a).

## CAUSES

The cause of functional speech sound disorders is not known; however, some risk factors have been investigated.

Frequently reported risk factors include the following:

- **Gender**—the incidence of speech sound disorders is higher in males than in females (e.g., Everhart, 1960; Morley, 1952; Shriberg et al., 1999).
- **Pre- and perinatal problems**—factors such as maternal stress or infections during pregnancy, complications during delivery, preterm delivery, and low birthweight were found to be associated with delay in speech sound acquisition and with speech sound

disorders (e.g., Byers Brown, Bendersky, & Chapman, 1986; Fox, Dodd, & Howard, 2002).

- **Family history**—children who have family members (parents or siblings) with speech and/or language difficulties were more likely to have a speech disorder (e.g., Campbell et al., 2003; Felsenfeld, McGue, & Broen, 1995; Fox et al., 2002; Shriberg & Kwiatkowski, 1994).
- **Persistent otitis media with effusion**—persistent otitis media with effusion (often associated with hearing loss) has been associated with impaired speech development (Fox et al., 2002; Silva, Chalmers, & Stewart, 1986; Teele, Klein, Chase, Menyuk, & Rosner, 1990).