



# Webwords 36

## Motor speech disorders

Caroline Bowen

There is little point in telling Speechwoman not to worry. Webwords has tried, but the over-conscientious doyenne of elastic webbing, Lycra, and Spandex daywear, stretchwear for the gym and what's-best-for-us on the Internet worries constantly. High on her list of key concerns are midriff bulge and the standard of web-based information relating to communication sciences and disorders. Webwords found her in deep despair after a frustrating week of trawling for plain-English articles on motor speech disorders.

"What's up?"

That was all it took for the usually contained **Speechwoman**<sup>1</sup> to unleash a rare and uncharacteristic outburst.

"If there was an Internet booby prize for the communication disorder associated with the most misinformation", she said hotly, "it would surely be awarded to a site about childhood apraxia of speech."

"I know."

"Yes, well," she spluttered. "But do you also know that if you look on the Internet for soundly based information for families and consumers of speech-language pathology services, there is virtually nothing about dysarthria in children or adults or about acquired apraxia of speech either?"

"Nothing?"

"Virtually nothing."

"Crumbs."

"Crumbs indeed. And when you think you have found a good page you discover that it links to a site containing the most unutterable rubbish."

"May I quote you?"

"Quote me?"

"I have to help her write a column on motor speech disorders."

"Well, yes. Put the word out there by all means. But you'd better not say 'unutterable rubbish'."

"Blithering nonsense then."

"No!" At least she was laughing.

"OK. We'll call it other sites. But is it as bad as all that?"

Ever the optimist, Speechwoman admitted to being pleased with the clarity and accuracy of the **Childhood Apraxia of Speech**<sup>2</sup> page on the Victorian Better Health Guide (produced in consultation with and approved by Speech Pathology Australia) and the excellent **Family Start Guide**<sup>3</sup> on the Apraxia-KIDS site.

### Neurogenic speech disorders

Neurogenic speech disorders occur in children and adults. They are a heterogeneous group of developmental or acquired speech impairments generally referred to as the "motor" speech disorders. Frequently coexisting with dysphagia, cognitive dysfunction, or language impairment they affect all speech processes: respiration, phonation, voice, resonance, prosody, fluency, and articulation. Clients affected by these disorders face challenges on many fronts as they grapple with the consequences of perinatal anoxia/hypoxia or paediatric stroke; or the effects of acute brain injury due to trauma, viral, or bacterial infections, neurotoxins, tumours or CVA; or are progressively assailed by an unfolding neurological disease or condition. Inevitably, these challenges involve key quality of life issues. The ages of onset of the different pathologies underlying motor speech disorders vary widely. Cerebral palsy is present at or shortly after birth, myotonic muscular dystrophy emerges at any age from infancy onwards, Parkinson's

disease may have "young onset" before the age of 40, amyotrophic lateral sclerosis usually strikes between 40 and 70 years of age, and a range of neurodegenerative disease, stroke, and brain injury types tend to affect older adults.

### The dysarthrias and apraxias

The motor speech disorders commonly diagnosed and treated by speech-language pathologists are the dysarthrias and apraxias. The dysarthrias may be flaccid, spastic, ataxic, hyperkinetic, hypokinetic or mixed in adults and children. The apraxias are apraxia of speech in adults and a different symptom complex with a confusingly similar name, childhood apraxia of speech, in children (Maassen, 2002).

The *dysarthrias* are due to weakness, incoordination or paralysis of the speech musculature. They are characterised by any combination of effortful or slurred speech, hyponasality, hypernasality, low or variable loudness, voice and prosodic difficulties, dysfluency, and breathing problems. These characteristics usually result in poor speech intelligibility, or even an absence of intelligible speech. Older people with dysarthria may have a particular difficulty with making themselves understood if their important communicative partners are contemporaries with age-related hearing loss and slowed cognitive processing.

- *Apraxia of speech (AOS)* involves difficulty planning and sequencing voluntary muscle movements related to speech. AOS can affect people at any age, but it is usually precipitated by stroke, head injury, tumour, or other neurological illness. Often accompanied by aphasia its characteristics are difficulty initiating speech movements, disrupted fluency with frequent pauses and restarts, groping for correct articulatory configurations, articulatory errors including distortions, and comparatively intact automatic speech.
- *Childhood apraxia of speech (CAS)* is a symptom complex rather than a unitary disorder. It is hypothesised by some researchers to be due to a genetically transmitted deficit in speech motor control, but this putative cause has not been confirmed and is the subject of ongoing research (Shriberg, 2006). To date there is no phenotype for CAS although there is general agreement that at its core is an impairment in planning and/or programming the spatio-temporal parameters of movement sequences. These space-time difficulties result in speech and prosodic errors and a characteristic receptive-expressive gap where the child with CAS has receptive language abilities that are superior to their expressive performance. Affected children exhibit speech errors including variable production of consonants and vowels in multiple repetitions of syllables or words (that is, token-to-token variability); lengthened and disrupted coarticulatory transitions between sounds and syllables; inappropriate prosody, especially when they come to apply stress to words or phrases (ASHA, 2007), and inconsistent application of nasal resonance (Shriberg Campbell, Karlsson, McSweeney, & Nadler, 2003).

The term CAS is applied to all presentations of apraxia in children, acquired and idiopathic. Although it is taking a little while to catch on in some parts of the world, "CAS" is now preferred by the research and clinical communities over more traditional labels like developmental verbal dyspraxia and "dyspraxia" which were usually only applied to idiopathic presentations.



Caroline Bowen

## Web resources

### Motor speech disorders in adults

Mindful of Speechwoman's words, it was delightful to find a classic article, **Rosenbeck and Wertz (1972)**<sup>4</sup> on the treatment of AOS on the University of Pittsburgh site, **Julie Wambaugh**<sup>5</sup> with contemporary guidelines for AOS intervention, and **Duffy (2008)**<sup>6</sup> on motor speech disorders and the diagnosis of neurologic disease. It was also interesting to locate Motor Speech Laboratories at **Arizona State University**<sup>7</sup>, the University of Canterbury<sup>8</sup> and the **University of Hong Kong**<sup>9</sup>.

### Motor speech disorders in children

On the ASHA site **Hammer (2009)**<sup>10</sup> writes about providing services in schools to children with CAS, **Strand and McCauley (2008)**<sup>11</sup> offer useful guidelines for differential diagnosis of severe speech impairment, **Gildersleeve-Neumann (2007)**<sup>12</sup> outlines the application of motor learning principles to intervention, and the jewel in the crown is the **ASHA (2007)**<sup>13</sup> Technical Report and Position Statement.

Meanwhile, a review of intervention for CAS in the **Cochrane Collaboration**<sup>14</sup> challenges the profession with news that their review, "demonstrates that there are currently too few well-controlled studies in this field to enable conclusions to be drawn about the efficacy of treatment for the entire CAS population, and calls for SLPs working in this area to design better studies." The collaboration makes a similar **call for research**<sup>15</sup> into dysarthria in children and adolescents with acquired brain injury, saying there are "currently too few studies performed in this area to draw any conclusions about the efficacy of treatment for dysarthria in children and teenagers".

### Other sites

The "other sites" Speechwoman shared came from three main sources: speech pathologists selling products and services; professional associations linking to sites with poor authority or credibility; and consumer groups disseminating opinion as fact. Two examples from the first category are **Sammy Speakwell's Oral Motor Therapy**<sup>16</sup> for children (marketed to parents), and **Speech Therapy on Video**<sup>17</sup> for adults with apraxia, aphasia, and dysarthria. In the second category, an ASHA consumer **information page**<sup>18</sup> links to a consumer-advocacy site full of misleading and misguided claims. That site in turn links to an example in the third category, a publicly **social networking**<sup>19</sup> page. It proclaims that fish oils are a treatment of choice for apraxia, that apraxia of speech in children is, according to "some authorities", a form of autism, and that "most [individuals] diagnosed with apraxia today also have co-existing sensory integration dysfunction or mild hypotonia."

### Who cares?

In terms of the development of our profession, we are enjoined by our **Code of Ethics**<sup>20</sup> to participate, professional-to-professional, in "vigorous discussion and constructive criticism of our profession within appropriate professional forums, including conferences and publications." In such discussions many of us have sounded off, privately, among ourselves about practices we see as inappropriate, ineffective and even dangerous. But what is the ethical thing say when our clients ask if the likes of Sammy Speakwell, developed and sold by a fellow speech-language pathologist, might be beneficial for their children? When the partner of a person with a motor speech disorder asks about the advisability of buying an apraxia, dysarthria or oral motor exercises video to work with independently?

Do we care?

In 2009 the Ethics Board and Council of Speech Pathology Australia conducted a comprehensive **review**<sup>21</sup> of the 2000 version of the Code of Ethics. Focus groups were consulted at our national conference and all members had the opportunity

to participate in a widely publicised survey. And what did we do? Well, 98.5% of us did nothing. Webwords and I won't be telling Speechwoman about this, of course. She'll only worry.

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## Links

1. [www.speech-language-therapy.com/speechwoman.htm](http://www.speech-language-therapy.com/speechwoman.htm)
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3. [www.apraxia-kids.org/site/c.chKM10PIIsE/b.839037/k.BE48/Family\\_Start\\_Guide/apps/nl/newsletter.asp](http://www.apraxia-kids.org/site/c.chKM10PIIsE/b.839037/k.BE48/Family_Start_Guide/apps/nl/newsletter.asp)
4. <http://aphasiology.pitt.edu/archive/00000662/01/02-17.pdf>
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10. [www.asha.org/publications/leader/archives/2009/090922/090922i.htm](http://www.asha.org/publications/leader/archives/2009/090922/090922i.htm)
11. [www.asha.org/publications/leader/archives/2008/080812/f080812a.htm](http://www.asha.org/publications/leader/archives/2008/080812/f080812a.htm)
12. [www.asha.org/publications/leader/archives/2007/071106/f071106a.htm](http://www.asha.org/publications/leader/archives/2007/071106/f071106a.htm)
13. [www.asha.org/docs/html/TR2007-00278.html](http://www.asha.org/docs/html/TR2007-00278.html)
14. <http://mrw.interscience.wiley.com/cochrane/clsyrev/articles/CD006278/frame.html>
15. <http://mrw.interscience.wiley.com/cochrane/clsyrev/articles/CD006279/frame.html>
16. [www.speech-therapy-on-video.com/speechtherapyforchildren.html](http://www.speech-therapy-on-video.com/speechtherapyforchildren.html)
17. [www.speech-therapy-on-video.com/index.html](http://www.speech-therapy-on-video.com/index.html)
18. [www.asha.org/public/speech/disorders/ChildhoodApraxia.htm](http://www.asha.org/public/speech/disorders/ChildhoodApraxia.htm)
19. [www.facebook.com/group.php?gid=115029735601](http://www.facebook.com/group.php?gid=115029735601)
20. [www.speechpathologyaustralia.org.au/Content.aspx?p=19](http://www.speechpathologyaustralia.org.au/Content.aspx?p=19)
21. [http://www.speechpathologyaustralia.org.au/library/Review\\_Code\\_of\\_Ethics.pdf](http://www.speechpathologyaustralia.org.au/library/Review_Code_of_Ethics.pdf)

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