

# 1 INTRODUCTION

## Brief History of MIT

For more than 200 years we have been aware that some severely aphasic patients can sing better than they can speak. Often these patients make no mistakes in pronunciation of words during singing, though they are unable to pronounce the same words under other circumstances (Goldstein, 1942). This observation has prompted aphasiologists to use music and rhythm in the treatment of some patients.

Mills, for example, suggested in 1904 that the clinician play the piano and sing popular songs with the patient. It seems, however, that while singing popular songs may benefit the patient psychologically, it may have little effect on production of propositional or conversational speech.

Instead of singing popular songs with aphasic patients, some clinicians have suggested that useful words and sentences be presented to the patient rhythmically (see, for example, Backus, 1945). It was not until 1973, however, that a formal study of this approach was undertaken. Albert, Sparks, and Helm began to explore, in depth, the use of a singing technique to facilitate and stimulate the propositional speech of severely impaired aphasics. They were encouraged by evidence that the right cerebral hemisphere is important in mediating musical stimuli and intonational contours (Blumstein & Cooper, 1974; Bogen & Gordon, 1971; Gates & Bradshaw, 1977; Kimura, 1964; Luria, Tsvetkova, & Futer, 1965; Ross & Mesulam, 1979; Shapiro, Grossman, & Gardner, 1981; Tucker, Watson, & Heilman, 1977). Hypothesizing that functions associated with the intact right hemisphere might be tapped to improve the language functions of a damaged left hemisphere, Albert and his colleagues (1973) developed the technique now known as Melodic Intonation Therapy, or MIT (Helm-Estabrooks, 1983; Sparks & Deck, 1986; Sparks, Helm, & Albert, 1974; Sparks & Holland, 1976).

## General Description of MIT

Melodic Intonation Therapy is a hierarchically structured program divided into three linguistic levels. In the first two levels, multisyllabic words and short, high probability phrases are intoned musically and tapped out syllable by syllable. The third level introduces longer or more phonologically complex phrases. These longer phrases first are intoned, then produced with exaggerated speech prosody, and finally spoken normally.

On all intoned phrases the clinician taps the patient's left hand once for each syllable. Items are intoned very slowly, with continuous voicing, using simple high note–low note patterns. Pictures to illustrate target items are used to help stimulate patient response.

## Good MIT Candidates

Research has shown that patients who have good response to MIT have most or all of the following characteristics (Helm, 1978):

1. Etiology: Stroke
2. Nonfluent or severely restricted verbal output (e.g., a nonsense stereotypy such as “bika bika”) that is at least partially suppressed when singing popular songs
3. Relatively good auditory comprehension
4. Poor repetition, even for single words
5. Poor articulatory agility (a rating of 3 or less on the *Boston Diagnostic Aphasia Examination* [Goodglass & Kaplan, 1984] speech characteristic profile rating of articulatory agility)
6. Good emotional stability, motivation, and attention span

In 1985, Naeser and Helm-Estabrooks published a study that looked at CT scans of eight patients who completed a program of MIT. Brain lesions of four patients showing good response to MIT (i.e., improved conversational speech) were compared with those of four patients with poor response. Patients with good response had the following lesion characteristics:

1. A left hemisphere lesion that included Broca's area or undercut Broca's area with inclusion of periventricular white matter deep to lower motor cortex for face
2. No large lesion in Wernicke's area or the left temporal isthmus
3. Intact right hemisphere