Melodic intonation therapy (MIT), a method developed to assist the adult aphasic regain verbal communication, is presented with step-by-step procedures and suggestions. Also described is the type of patient for whom the technique appears most successful.

Melodic intonation therapy (MIT) was developed in the continuing search for more effective methods of aiding the severely aphasic adult in recovery of ability to encode thoughts into units of meaningful verbal communication. Emphasis has been on recovery of formulation of propositional language rather than the motor aspects of speech production. The procedure was developed as a form of language therapy for a population which has little, if any, useful language. Nevertheless, it is doubtful that the chronically "global" aphasic who has not demonstrated any recovery and is severely impaired in all language modalities will respond to this form of language therapy any more than he can to other therapeutic approaches. This opinion is based on the experience of many clinicians and is supported by the investigation of Sarno, Silverman, and Sands (1970). While MIT is directed to language, some clinicians have reported success adapting it to improve slurred articulation and to reduce the frequency of phonemic errors in some aphasic patients.

A preliminary report on the effectiveness of MIT with three aphasic patients was published by Albert, Sparks, and Helm (1973). A second report (Sparks, Helm, and Albert, 1974) presented a physiological model that would account for MIT success in terms of right cerebral hemisphere dominance for music and speech prosody. The report also evaluated MIT effectiveness with

---

1Martin Albert informed the authors that three globally aphasic patients at Hadassah Hospital in Jerusalem recovered some verbal skill because of MIT.
eight patients. Three subtests of the Boston Diagnostic Aphasia Examination (Goodglass and Kaplan, 1972) (BDAE)—Responsive Naming, Confrontation Naming, and Phrase Length in Conversation—were used to measure the patients' response to treatment, and analysis of variance showed that six of the eight subjects made test gains that would be improbable on the basis of chance. In the latter report, the authors concluded that the best candidates for MIT were aphasic patients whose auditory comprehension was appreciably better than their verbal expression. Their relatively preserved auditory comprehension included evidence of self-criticism, and their nonfluency included poor repetition skill. The patients who improved also evidenced emotional stability and made efforts to relate to other patients and staff members.

MIT has also produced improvement in verbal expression for 14 of 20 aphasic patients who have received this new language therapy to date at the Aphasia Research Section of the Boston Veterans Administration Hospital. All of these patients had severely limited verbal output, but the ones who profited most had only mild-to-moderate impairments of auditory comprehension. Sixteen of these subjects served as their own controls in evaluating the efficacy of this new technique. Evaluation of the severity and quality of aphasia in these subjects was based on the z score profile of the BDAE. The extreme verbal nonfluency of these patients placed them at the maximum point of impairment on the profile. On the other hand, the results of their tests for auditory comprehension placed them in the range from 0 to +0.5 on this z score. Each of these subjects had received language therapy by the speech pathology staff of the same hospital once or twice daily for six months without improving the quantity or quality of verbal output. Eleven of this group of 16 (69%) made gains in verbal expression as a result of MIT, while the remaining five subjects did not profit from this technique.

The earlier published reports on MIT have been concerned with the theoretical and evaluative aspects of the method as well as its efficacy. Clinicians relying on these previous research reports for a detailed description of the method have made it apparent that these reports are insufficient for answering a number of questions concerning transposition of speech prosody to melodic intonation, the technique of administering MIT, and the method of scoring. The purpose of this paper is to provide that clinical information.

When a new clinical procedure is presented, its developers face a dilemma. They must present the procedure in detail if others are to be able to use it. Indeed, we recommend practicing MIT with a colleague who plays the role of an aphasic patient before using the technique with an actual patient. However, this approach risks having the protocol followed rigidly, even though we know that specificity in clinical management should not rule out clinical sensitivity. In this paper, we describe clinical procedures as explicitly as possible, but persons applying the procedures may modify them to meet the needs of individual patients. The clinical awareness and skill of the person providing clinical service should influence the form of that service.
THE FORM OF MELODIC INTONATION

At the outset, it is crucial to differentiate between intoning propositional sentences or phrases and singing songs. As opposed to singing, melodic intonation uses a limited range of musical notes. A range of three or four whole notes is all that is necessary for an adequate variety of patterns. The range is only slightly greater than the range of inflection in the melodic line of American English and is adequate to allow for regional variations in the prosody of speech.

The musical pattern of melodic intonation is similar to that of the recitative which occurs in operas composed by Mozart, Donizetti, and Rossini. The basic principle of melodic intonation is quite simple. The intoned pattern is based on one of several speech prosody patterns which are reasonable choices for a given sentence, depending on the inference intended. The three elements are the melodic line, the rhythm, and points of stress. Intonation patterns which resemble those of well-known songs are always avoided, since regression to the words of the songs occurs if such melodies are used. Figure 1 plots the

![Figure 1](http://jshd.pubs.asha.org/)

**Figure 1.** Prosodic patterns and their transposition to melodic intonation patterns. | represents a single syllable word; □ represents a multisyllabic word or phrase; > indicates stress; H represents higher than pitch; L represents lower pitch.

prosodic pattern of four declarative sentences and the transposition of those patterns into musical notations for melodic intonation. The plots are primarily based on speech patterns commonly used in the northeastern United States. For the clinician who is not confident about ability to sing, pitch inaccuracies should not present problems so long as the variation of higher or lower pitch, dictated by the speech prosody patterns of the sentence, is maintained.

Melodic intonation should have a slower and more lyrical tempo than speech, with more precise rhythm and more accentuated points of stress. As the technique has developed, it has become clear that this divergence from speech facilitates articulation and reduces the frequency of paraphasic errors. Further, by directing the aphasic's attention to these three elements of melodic intonation—slow tempo, precise rhythm, and distinct stress—the
subject appears to be more capable of processing the structural aspect of the intoned verbal utterances.

GRADUAL PROGRESSION

The principle of gradual progression underlies the form of MIT. That is, from the starting point of a series of carefully intoned sentences and phrases, the aphasic subject is guided through a sequence of steps which increase the length of the units, diminish dependency on the clinician, and diminish reliance on intonation. At the end of the program, the patient is capable of using spoken prosody for uttering the sentences embedded in the program structure. For purposes of clearer description, the program has been divided into four progressive levels of difficulty. Within each level, there are a series of discrete steps which will be described in detail in a subsequent section.

To ensure gradual progression, the patient's verbal behavior at each level of the program determines when he will move to the next, more difficult level of the program. That is, performance at each step within any of the last three of the four levels is scored as correct or incorrect; in order to move from one step to the next, the aphasic must demonstrate an acceptable performance at that step.

In order to progress from Level II to Level III, or from Level III to Level IV, the subject must perform at a criterion of 90% based on the mean of 10 consecutive scores. When a subject's performance is less than adequate, items are sometimes repeated to attempt improvement. The procedure for this is described in the Appendixes.

The first level has no linguistic component. This preliminary level establishes the process of intoning melody patterns and accurately handtapping the rhythm and stress of each pattern. This facilitates adapting the aphasic to a procedure which, at first, may seem strange.\(^2\)

The tasks in Level II move from requiring the subject to tap the rhythm and stress of the clinician's intoned utterance to responding to a request from the clinician for a repetition of the target sentence.

At Level III the program's difficulty is increased by fading participation of the clinician, by introducing enforced delay of responses so that some element of retrieval is introduced, and finally, by requiring the subject to give appropriate intoned responses to intoned questions from the clinician regarding elements of information in the sentences. In addition, the opportunity for correction of errors is introduced by incorporation of a backup procedure in this third level. From this point in the program, the aphasic must temporarily move backwards in the program if he fails on any step. He repeats the successfully produced previous step, then again attempts to complete successfully the failed step. A second failure terminates further progression for that sentence. The score for a step which is corrected following backup is also cut

\(^2\)The authors are indebted to William Berry for suggesting this introductory level.
from full credit to one-half. Following achievement of the 90% criterion at Level III the patient moves to Level IV.

Level IV, the final part of the MIT program, is primarily concerned with return to normal speech prosody. Latency between stimulus and response is increased to produce decay of repetition skill and to increase efficiency of retrieval. The training sentences are longer and more complex. Transition back to speech prosody is facilitated by a technique called *sprechgesang* (speech-song). This is illustrated in Schoenberg's compositions, *Pierrot Luniare* and *Ode to Napoleon*. In this technique the melodic line remains the same as the intoned sentence of the preceding step, except that the constant pitch of intoned words is replaced by the variable pitch of speech. It is important that the tempo, rhythm, and stress of the intoned sentence are retained. Backups continue to be used and the 90% criterion level remains.

**THE LANGUAGE UNITS**

At each level, the language includes 12–20 short sentences or phrases. Ideally, the sentences and phrases should be content-related and as relevant as possible to the patient's needs and background. Sentences may be presented in random order, although the authors have found it simpler to settle into an invariant order of sentence presentations at each level. Sentences and phrases at Level II do not exceed four words, while sentences for Levels III and IV are both longer and more complex. At each level, a single sentence is taken from step to step until either completion or failure occurs for that particular sentence.

To the present time, work on MIT has been almost completely devoted to aphasics who had severely limited output. The emphasis has been on task progression or form, rather than on the linguistic content of the units. It is clear that careful attention to grammatical structure of the language units is now in order, perhaps in terms of gradual increase of linguistic complexity, perhaps in terms of linguistic spontaneity by using a changing lexicon in appropriate slots of controlled and defined sentence types, or perhaps in some other as yet unspecified way. Not only may consideration of grammatical structure improve the efficiency of MIT for the severely impaired aphasic, it may also establish usefulness for less severely impaired subjects or for later stages of therapy for those being focused on presently. Appendix A illustrates some sample MIT sentences for each level.

**DETAILED PROCEDURE**

What follows is a detailed description of each step in each level of the MIT program. Each of these steps is in accordance with the general principles outlined previously and is presented here to fill in details.

*Level I.* This first preliminary level has a single step in which the clinician hums a melody pattern within the three to four whole note range previously
described. At the same time he aids the subject in handtapping the rhythm and stress of the stimulus melody. Progression to Level II should occur as soon as the subject's performance and affect indicates that a satisfactory "set" for intoning has occurred. No scoring is involved. Level I is summarized in Appendix B.

**Level II.** Level II has five steps:

1. In the first step the clinician hums the melody of the utterance as in the first level. This nonverbal presentation of the melody, rhythm, and stress is again accompanied by assisting the subject in handtapping the rhythm and stress of the utterance. The presentation is then repeated by the clinician with the words added. No verbal participation by the aphasic is permitted.

2. In the second step the clinician intones the sentence again. The aphasic is signaled to join the clinician in unison participation. No restriction is placed on the number of repeated trials which may occur, but the experienced language clinician will be sensitive as to whether improvement is occurring with repeated unison intoning of the utterance or whether this only reinforces perseverated errors. Handtapping again accompanies both the stimuli and the unison repetitions.

3. The third step resembles the second except that the clinician fades his participation, encouraging the subject to continue alone. The clinician should be prepared to rejoin the subject if necessary to aid the subject in achieving success so long as fading eventually produces a successful solo performance by the subject. It is sometimes necessary for the clinician to adapt to minor changes in intonation patterns which are created by the subject. This is acceptable if it is not accompanied by an alteration of the linguistic structure of the sentence or phrase. Handtapping accompanies as in the previous steps.

4. In the fourth step the clinician first presents the intoned utterance. Unison accompaniment by the subject is not permitted. Instead, he is signaled to wait until the clinician has completed the utterance. He is then signaled by the clinician to repeat it. Handtapping with rhythm stress accompanies both the stimulus and response.

5. The fifth step consists of an intoned request by the clinician for an intoned repetition of the sentence. This step is useful as a means of decreasing repetition response and increasing the process of retrieval. Handtapping accompanies the aphasic's response. Level II is summarized in Appendix B.

**Level III.** Level III has four steps as follows:

1. In the first step of Level III the clinician intones the sentence twice, not allowing the aphasic to respond. Handtapping accompanies the intonation.

2. In the second step the subject joins the clinician in unison intoning of the sentence but with fading participation by the clinician so the subject eventually is repeating by himself. Again, the judgment of the clinician as to the value of frequent repetition of the unison intonation of the utterance is essential. If improvement does not occur in the subject's performance, further progression for that sentence should be discontinued. Backups are not introduced until the third step.

3. In the third step the subject is asked to repeat the intoned sentence following its presentation by the clinician. However, the clinician enforces a delay of two or three seconds before allowing the subject to respond. If the subject's response is acceptable, the clinician proceeds to the fourth step. If, on the other hand, the response is not acceptable, the backup is used. It is a repetition of the second
step—unison intonation with fading participation by the clinician. A retrial of this third step follows the backup. Failure during a retrial terminates further effort for that sentence.

4. In the fourth step the clinician intones a question pertaining to some element of information in the sentence. This question should be given immediately after completion of the third step. The patient is encouraged to be specific in his reply rather than simply repeating again the sentence in its entirety. He should not be penalized if such a repetition is given as the response but the clinician should explain that briefer and more specific responses are better. The subject's responses should be intoned, but specificity of response may involve a natural return to speech prosody. The backup for this step is a repetition of the third step—intoned presentation of the sentence, enforced delay, then intoned repetition of the sentence by the subject. Retrial of Step 4 then occurs according to the criterion for all retrials following backups. Level III is summarized in Appendix C

**Level IV.** Level IV has five steps:

1. In the first step of the fourth level the clinician intones the utterance. This is followed by enforced delay before permitting the subject to repeat it. The amount of delay is increased in length as the subject improves. The backup is unison intoning of the utterance but with fading participation by the clinician. Retrial of this first step follows. Handtapping continues in this step.

2. In the second step the clinician presents the utterance once in sprechgesang then asks the aphasic to join in unison sprechgesang repetition. Participation by the clinician is faded as the subject's performance indicates that he has made the transition to this semispeech prosody. It is possible that in the first few sessions the subject will either continue to intone or will revert to normal speech prosody. He should be encouraged to intone in the sprechgesang mode as a means of controlling the rate of his verbal output. Continued use of handtapping will aid the subject both in using the technique and in maintaining the rhythm and stress components of this transitional method. The backup is repetition of the first step—presentation of the intoned sentence by the clinician, enforced delay, then repetition by the subject. As in previous steps, retrial of the second step follows the backup.

3. In the third step the clinician presents the sentence once again in sprechgesang. This is followed by enforced delay before permitting the subject to repeat it. Handtapping the rhythm stress by the clinician alone accompanies presentation of the stimulus. Handtapping by the subject is voluntary but not aided by the clinician. The backup is repetition of the second step—unison sprechgesang with fading participation by the clinician, then retrial of the third step.  

4. In the fourth step the clinician, for the first time, presents the sentence in normal speech prosody at a normal rate of delivery. This is followed by enforced delay of increasing amounts as in the first step. The subject is then signaled to repeat the sentence in normal prosody. The backup is repetition of the third step—presentation of the sentence in sprechgesang, enforced delay, then repetition by the subject. Retrial of the fourth step follows.

5. In the fifth and final step an appropriate question or two about the information contained in the sentence is presented by the clinician. For example, if the sentence had been "Drive to the store," the questions might be "Where are you going?" "How will you get there?" and perhaps a tangential question such as

---

3The authors are indebted to Joyce West for suggesting the third step.
"What are you going to buy?" Presentation of the first question is delayed for one or two seconds following completion of the fourth step. The backup is repetition of the fourth step—presentation of the sentence in normal speech, then enforced delay, then repetition by the subject. Retrial of the fifth step follows. Level IV is summarized in Appendix D.

Post-MIT. Melodic intonation therapy in its present form may be considered to be completed after the 90% criterion level has been achieved for the fourth and final level. Transition to a program of continuing language therapy might include modification of the last level, which would increase the number of questions prompted by the subject matter of the sentence being used. Aid in response to such questions could include any catalytic methods, such as phonemic cueing, which the clinician usually offers. As soon as the subject's performance shows improvement, the first step of the fourth level, then the second step, and finally the third may be eliminated.

DISCUSSION

A four-level program of melodic intonation therapy for aphasia has been revised by changes which have improved the progression from step to step and from one level to the next. Tasks have been added to make the program more comprehensive in purpose. Clinicians who will use MIT are encouraged to aid in making further modifications and additions after they have gained some experience with the procedure as presented here. Such changes will be inevitable, produced by experience with the procedure, then modified by both experience and the specific needs of the clinician. The initial use of MIT has been with aphasics who had an extreme paucity of verbal output. Many changes will be necessary if it is modified so it can be used with less impaired aphasics and for developmental language disorders in children. While it is too early to draw conclusions concerning its full potential or its limitations, the research indications and the reports from other centers appear promising.

ACKNOWLEDGMENT

The authors wish to express their appreciation for the helpful suggestions of Barbara Barresi and Nancy Helm. Robert Sparks is also affiliated with Emerson College in Boston. Requests for reprints may be addressed to either author.

REFERENCES


Received March 6, 1975.
Accepted October 13, 1975.
APPENDIXES

A. TYPE OF MATERIAL USED IN MELODIC INTONATION THERAPY

Sample Material Level II

1. twelve o'clock  
2. time for lunch  
3. bowl of soup  
4. salt and pepper  
5. ham sandwich  
6. apple pie  
7. glass of milk  
8. I am sleepy  
9. take a nap

Sample Material Levels III and IV

1. Sit down in a chair.  
2. Read the newspaper.  
3. Look at the sports page.  
4. Turn on the TV.  
5. Go for a walk.  
6. I am very tired.  
7. It is getting late.  
8. Time to go to bed.  
9. It is ten o'clock.

B. SAMPLE PROTOCOLS FOR LEVELS I AND II OF MIT

Stimulus | Response | Consequence
---|---|---
Clinician hums a melodic pattern, tapping the rhythm stress. | Patient and clinician hum melody and tap rhythm stress in unison. | Go to next melody if correct. Repeat the stimulus response sequence once, if necessary.

Level II

1. After signaling patient not to repeat, clinician presents melody patterns once, then repeats with the words added.

2. Clinician presents intoned item once, then invites the patient to join in repeated trials if accuracy increases.

3. Clinician again presents intoned item, inviting patient to participate. Fades own participation.

4. Clinician signals patient to listen, then intones item. Signals patient to repeat. Taps rhythm stress with patient.

If correct, score 1 point. Go to Step 3. If incorrect, score 0. Discontinue item. Begin at Step 1 with new item.

If correct, score 1 point. Go to Step 4. If incorrect, score 0. Discontinue item. Begin at Step 1 with new item.

If correct, score 1 point. Go to Step 5. If incorrect, score 0. Discontinue item. Begin at Step 1 with new item.
5. Clinician intones request, "What did you say?" Patient again repeats intoned item. Rhythm stress tapping with clinician accompanies again. If correct, score 1 point. If incorrect, score 0; item completed.

C. SAMPLE PROTOCOL FOR LEVEL III OF MIT

Stimulus  | Response  | Consequence
---|---|---
1. After signaling patient not to repeat, clinician presents the intoned item twice. Patient and clinician tap rhythm stress as clinician presents the stimulus. Go to Step 2.
2. Clinician again presents intoned item, inviting patient to participate. Fades own participation. Patient and clinician begin intoned response in unison. Clinician fades own oral participation but continues aiding rhythm stress tap. If correct, score 1 point. Go to Step 3. If incorrect, score 0. Discontinue item. Begin at Step 1 with new item.
3. Clinician signals patient to listen, then intones item. Delays permission for patient to respond to 2-3 seconds. Then signals for him to repeat. Taps rhythm stress with patient. Patient intones repetition of item when signaled. Continues tapping the rhythm stress with clinician. If correct, score 2 and go to Step 4. If incorrect, back up to Step 2. Then retry Step 3. If correct, score 1. If incorrect again, stop. Begin new item at Step 1. If correct, score 2 and go to Step 2. If incorrect, back up to unison intoning of item with fading by clinician. Then retry Step 1. If correct, score 1. If incorrect again, stop. Begin new item at Step 1.
4. Clinician intones question based on some element of information in item. Patient replies with an appropriate response. If correct, score 2 points. If incorrect, back up to Step 3. Then retry Step 4. If correct, score 1. If incorrect again, stop. Item completed.

D. SAMPLE PROTOCOL FOR LEVEL IV OF MIT

Stimulus  | Response  | Consequence
---|---|---
1. Clinician signals patient to listen, then intones item. Delays permission for patient to respond for 2 or more seconds. Then signals for him to repeat. Taps rhythm stress with patients. Patient intones repetition of item when signaled. Continues tapping the rhythm stress with clinician. If correct, score 2 and go to Step 2. If incorrect, back up to unison intoning of item with fading by clinician. Then retry Step 1. If incorrect again, stop. Begin new item at Step 1. If correct, score 2 and go to Step 2. If incorrect, back up to Step 1. Then retry Step 2. If correct, score 1. If incorrect again, stop. Begin new item at Step 1.
2. Clinician presents item in sprechgesang, inviting patient to participate. Fades own participation. Patient joins clinician in unison sprechgesang repetition of item. Clinician fades own participation but continues aiding rhythm stress tapping. If correct, score 2 and go to Step 3. If incorrect, back up to Step 1. Then retry Step 2. If correct, score 1. If incorrect again, stop. Begin new item at Step 1.
3. Clinician signals patient to listen, then presents item again in sprechgesang. Delays permission for patient to respond for 2–3 seconds. Then signals him to repeat. Handtaps rhythm stress alone while presenting item.

Patient repeats item in sprechgesang when signaled. Not required to handtap rhythm stress.

If correct, score 2 and go to Step 4. If incorrect, back up to Step 2. Then retry Step 3. If correct, score 1. If incorrect again, stop. Begin new item at Step 1.

4. Clinician again signals patient to listen, then presents item in normal speech. Delays permission for patient to respond for 2 or more seconds. Then signals him to repeat. No handtapping.

Patient repeats item in normal speech when signaled. No handtapping rhythm stress.

If correct, score 2 and go to Step 5. If incorrect, back up to Step 3. Then retry Step 4. If correct score 1. If incorrect again, stop. Begin new item at Step 1.

5. Clinician asks two or more questions which are based on information in item.

Patient replies with responses which are appropriate and accurate.

If correct, score 2 points. If incorrect, back up to Step 4. Then retry Step 5. If correct, score 1. If incorrect again, stop. Item completed.