

A GUIDE TO IMPROVING SPEECH & SWALLOWING

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Can I improve my speech and swallowing?

This must be a question that most of you may have in your minds. Maybe, some of you have not even thought of entertaining this question in your mind assuming that there is no scope for improvement. Well, there is a lot you can do to improve the situation. The following explanations and guidelines we hope will be of good help.

How to cope, adjust and compensate for your speech (communication) and swallowing challenges?

Speech problems can be seen as part of Parkinson's Disease and when severe, can make oral communication very difficult if not impossible. Problems often begin with the speech becoming softer and more monotonous in quality. Some may even develop a stuttering like quality to their speech.

Individuals with Parkinson's Disease are likely to report about the following difficulties in speech and swallowing:-

1. Voice is quieter, or weak, or cannot be heard in noise.
2. Many will complain that rate of speaking is too fast or that words are not clear
3. Some feel that their speech lacks emotional tone.
4. Some describe the difficulties with initiation of speech or repetitions of sounds, syllables, and even words.
5. Speech is poorer when tired.
6. Speech varies as a function of their medication cycle, often reporting that it does get worse just before their next dose.
7. Sometimes upper lip is stiff
8. Often have complaints of drooling and swallowing
9. Greater time and effort to move food or liquid from the mouth to the stomach

Therefore it is important for a person with Parkinson's Disease and his/her family members to understand why he/she experiences these problems with communication that is, speech. The reason for the swallowing problem, if understood, also helps in coping with it.

First it is essential to realize that speech involves the *movement* of a large group of muscles in the various systems of our body and that all these muscles need to co-ordinate in a complex way with proper timing and rhythm. Therefore, we will first highlight the various systems / processes involved in the production of speech followed by the constraints you may experience in each of the systems which may contribute to your speech problem. These are

- RESPIRATION
- PHONATION
- RESONANCE
- ARTICULATION
- PROSODY

1. RESPIRATION: - What is the relationship of BREATHING AND SPEECH? Breath is the main source of power for the production of speech. During normal respiration air gently gets into the lungs passing through the nostrils (nose), pharynx (space behind the oral cavity and nasal cavity), larynx (voice box) and trachea (wind pipe). Similarly air gets out of the lungs passing through the trachea, larynx, and pharynx and through the nostrils to the outside air. It is when this air passes through the voice box that the vocal cords (2 strings like muscles- parallel to each other in the larynx) vibrate to produce the sound. Adequate power is possible if the chest and abdomen muscles move adequately and precisely in coordination. The duration of the **inspiration phase** (breathing in) and the **expiration phase** (breathing out) are the same when one is quiet (known as vegetative breathing) but gets modified during speech known as speech breathing. The duration of the expiratory phase is longer during speech and this control of prolonging the expiratory phase is possible due to the control of the movement of a group of respiratory muscles. The whole process is complex but automatic and we therefore take it for granted. The following are the constraints for you during the process of respiration:-

- **Reduced chest movements**
- **Rapid breathing cycles**
- **Inability to shift from vegetative breathing to speech breathing**

Needless to explain that this happens due to rigidity, which in turn reduces the **range of movements** of the abdominal and chest muscles and makes it difficult to **initiate movements**.

Additionally, some of you may have **incorrect postures** wherein you may stoop or hunch your shoulders while walking, standing or sitting. These postures may restrict your breathing, preventing deep breathing leading to a shallower pattern of breathing not conducive for good speech.

2. PHONATION that is, production of the voice is possible, as discussed above, if there is sufficient power in the air stream that is being expired. Besides, the cords need to move in a coordinated manner with sufficient force to produce an adequately loud voice. Once again due to rigidity, **reduced range and slowness of movements** lead to reduced flexibility and control of laryngeal movements which in turn leads to inappropriate postures of the vocal cords and other structures in the larynx. Therefore the voice sounds **breathy, harsh, reduced in loudness and speech becomes monotonous.**

3. RESONANCE is the ability of some of our speech sounds to get amplified and or modified by the chambers the sound passes through. Our basic speech sound produced at the larynx passes through the nasal cavity and oral cavity. Depending on the type of speech sound the size and shape of the oral cavity keeps changing and so does the sound. When the air passes through the nose, the speech gets the nasal sound like in 'mama' and 'nana'. The soft palate is the part which is responsible for giving the oral tone or the nasal tone. When the soft palate moves up against the pharynx, it closes off the nasal resonance by blocking air from passing through the nasal cavity. This forces air out through the oral cavity thus producing oral tone leading to sounds such as vowels and non nasal consonants. When the soft palate moves down, the nasal tone is produced wherein air is released both through the nasal as well as the oral cavity.

In some of you, the voice may sound hyper nasal due to the weakness and inability of the soft palate to move up adequately. However this found to be rare.

4. ARTICULATION, which is ability to move the various parts viz. tongue, lips, teeth, soft palate, jaws (known as articulators) and make appropriate contacts among a pair of articulators in proper rhythm and optimum speed to produce speech that is easy for the listener to understand. If the contacts are inadequate the speech becomes unclear. Restricted movements of lips, jaws can make the speech too fast- (rushes of speech), too slow, inappropriate stress, frequent silent pause.

5. PROSODY: The ability to use intonation (emotional tone in our voice) is the result of the ability to fine tune the length of muscles of our vocal cords for making our voice high pitched or low pitched to add the liveliness to our voices. A voice can be made high pitched by tightening the vocal cords and can be made low pitched by keeping the cords lax. Similarly, varying loudness of our voice needs varying amounts of breath power. The foregoing is a

simplistic explanation as the range of pitch and loudness varies with every phrase that we speak and therefore the changes are ongoing.

Similarly, appropriate facial expressions also need the fine control on the various groups of facial muscles and the contraction and relaxation of these muscles help to give the relevant expressions.

Thus both these abilities of having a good intonation and facial expressions get compromised due to the rigidity of the required muscles and you may have an expressionless face and a voice which lacks rhythm and variability and therefore sounds monotonous.

Process of Swallowing:-

To understand why swallowing may become a challenge, we will explain the process of swallowing:-The process of swallowing has typically the following four phases.

- 1) **The Oral Preparatory Phase** during which the food is accepted into the mouth and then the activity of chewing and tasting is followed by the manipulation of the food into a bolus (a cohesive mass).
- 2) **The Oral Phase** is the stage wherein the bolus is pushed posteriorly until the next swallow phase is initiated.
- 3) **The Pharyngeal Phase** begins with the triggering of “swallow reflex” This in simple terms means that our centre in the brain responsible for the movement of the bolus into our pharynx gets activated. There are 3 pre-requisites for this to happen which are:
 - a) Soft palate (velum) has to move up and backwards (in technical terms elevate and retract)
 - b) Larynx has to move up and forward.
 - c) Epiglottis (a flap of tissue that sits at the base of the tongue) should cover the larynx to protect it from food entering it.

Due to the above movements there is a pressure on the bolus and it moves down to the area just above our esophagus.

4) The Esophageal Phase: - Begins when the bolus enters the area just above our esophagus and ends when it enters into the esophagus.

In all the above stages, the passage of the bolus is facilitated by wave like movements of the inner lining of the muscles (technically termed as *peristaltic* movements) of pharynx and esophagus.

It is clear from the above, that your difficulty with swallowing is mainly due to the slowing down of your movements. One need not imagine it to be a major problem. Therefore if you start accepting that you will take longer to complete the whole process as compared to the time you took earlier, it will facilitate coping and adjustment on your part.

Difficulties that some of you may experience due to problems in Swallowing :-

- Drooling because you do not swallow frequently and saliva gets accumulated.
- Difficulty in chewing and pocketing of food in buccal recesses (inner side of cheeks because all the oral muscles move slower due to rigidity).
- Pumping movements of the tongue which are undesirable prevent the food from moving from front to the back of the mouth. These occur probably due to the attempts to swallow against all the odds. This leads to the difficulty in getting the swallow started.
- Food may stick in the pharynx and esophagus.

MANAGEMENT

There are several reasons why family members and the person with PD need to **first realize the difference of communication versus speech.**

1. We speak because we need to **communicate** our thoughts and feelings to others and we do so by not only using **speech** but often using gestures along with speech. We also use the channel of writing to express. Thus, speech is one of the modalities through which we communicate our thoughts.

2. Therefore depending on the degree of severity of speech disorder, one can take the additional support of the gestural and written channels/modalities to enhance communication and thereby make it relatively more efficient. Individuals with P.D. may need to repeat or answer questions that clarify the meaning of what they say, supplement speech by pointing to the first letter of each spoken word on a letter board, write or type portion of messages, and so on. This realization helps to shift the focus from speech to other channels/ modalities.

3. Therefore it will be good if one gets a clear picture of the following **aims that therapy will help them achieve:-**

a) We need to **compensate** for the functions that have become difficult. This is possible because we can modify the network of circuits in our brain that have been functioning optimally till now. With exercises we will try to change these very circuits and **maximize the residual abilities of the brain.**

Research has shown that we use only a small area of the brain during our lifetime and the rest of the areas have not been put to use. It is now that an attempt could be made to utilize these areas by doing **REGULAR EXERCISES** which a Speech Language Pathologist can assist you in.

b) We need to **accept the limitations** and accordingly adjust to the changing situations. These changes may continue as the difficulties increase.

c) **Medications** will help to improve your ability to speak at certain periods during your medication cycle. The speech is known to be better during the 'on state' of the medication.

TIPS TO IMPROVE SPEECH

- Express in short concise sentences.
- Exaggerate the sounds.
- Lay more stress on the key words.
- Take a breath before speaking.
- Make sure that you speak fewer words per breath.
- Open your mouth adequately.
- Try to speak as loudly as you can.

- Speak only in an environment which is less noisy. Family members need to pay special attention to this aspect.
- Singing is a good form of vocal exercise.
- Practicing deep breathing and exercise your respiratory system
- Lift your head up and do exercises to strengthen your posture if you have a posture where you tend to stoop over with your chin down on the chest. This will help to speak OUT clearly.

Regular speech exercises are the key to improve loudness and lend clarity to your speech. But, these exercises must be done regularly (**everyday**) or any benefits gained tend to be lost soon. In the event that speech really becomes compromised and exercises are not helping to produce understandable speech, then an alternative strategy of using gestures, communication boards, signs can be taught to ensure that the individual is able to communicate. Some times a personal amplifier system may be of help to take care of speech which is very soft and exercises are not of much help. A speech language pathologist (SLP) is the member in the team to help you decide which device might be most suitable to your needs, abilities and lifestyle.

One speech pathologist, Dr. Lorraine Ramig, has long studied the effects of Parkinson's disease (PD) on the voice. Her research has shown that the vocal cords of individuals with PD become almost bowed () whereas to produce clear sound, the vocal cords must come together equally and totally ||. With regular exercises, the muscles of the vocal cords can become stronger and work more as they should. Dr. Ramig has found, however, that vocal exercises must be regular and continuing or the beneficial effects will soon wear off. The vocal cords are some of the most finely tuned muscles in the body. So, just like every other muscle, the vocal cords need regular, daily exercise to maintain proper function.

ROLE OF SLP AS A SWALLOWING THERAPIST.

The SLP focuses on four main domains to help you decrease your problem in swallowing -

- **Postural changes**
- **Changing consistencies of food**
- **Teaching Swallowing maneuvers**
- **Introduce changes in environment**

POSTURAL TECHNIQUES: - The following are some of the postures that an SLP will recommend depending on your difficulty.

Head back, Chin down, Head rotated to either left or right side.

CHANGES IN THE CONSISTENCY OF FOOD

The SLP will advice on the various types of food you would find easy to swallow. Generally the ranges of consistencies you will need to look at are listed in the table below:-

CONSISTENCY	EXAMPLES
Thin liquid	Milk, fruit juice
Thick liquid	Soup, milkshake
Puree	Yogurt, custard
Soft solid	Mashed potato, idli, porridge, khichdi, upma
Hard solid	Biscuits, chappati, toast, salads

The SLP will observe your swallowing and give you the appropriate advice.

SWALLOWING MANEUVERS:- There are a few exercises which will strengthen your musculature like the pushing exercises done in a particular way or tightening of your neck muscles and lifting your larynx. It is difficult to describe and explain in print. It is advisable for you to do the recommended exercises under the supervision of an SLP.

CHANGES IN THE ENVIRONMENT:-

The family members should ensure that they communicate with you in the least noisy environment. They need to give sufficient time to you to answer when in conversation and not hurry you up. There should be least distractions while you are eating as you need to give your complete attention to your food, chewing and swallowing and do all the activities in a relaxed manner. A light music being played in the background will always ease a situation during meal times. Use utensils which have a better grip during cooking or eating.

SOME USEFUL TIPS TO IMPROVE SWALLOWING

- Develop the habit of consciously swallowing every few minutes if you have the tendency of saliva accumulating in your mouth. Carrying a bottle of water and taking a sip every few minutes can be tried to further facilitate the disposal of saliva.
- Eat fruits/vegetables cut in smaller pieces (same for non-vegetarian food)
- Take small morsels
- Swallow 2/3 times after each morsel
- Drink liquids carefully
- Thicker liquids may be easier for some
- Make sure you have enough time. Do not try to rush during meal time.
- Eat food at a time when the medication has its effect.
- In spite of following all the exercises and guidelines if your difficulties persist, you need to consider changing your diet in consultation with the Dietician and SLP

Hope these simple guidelines will help you face the challenges with confidence. Wishing you good luck. Feel free to contact us at the address given below.

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