1. **Assessment of Perceptual Speech Characteristics**
   - *Ear is your best tool*

2. **Perceptual Speech Exam**
   - framework for analysis formulated by Darley, Aronson and Brown
   - known as Mayo approach
   - based on Mayo Clinic dysarthria studies

3. **Question: what does dysarthria sound like?**
   - can the perceptions we hear be systematically explored?
   - What is the basis for our decision that someone has abnormal speech?
   - what clinical populations include dysarthria as a sx?
   - can clinical populations be differentiated on the basis of dysarthria?

4. **Mayo Clinic Studies**
   - analysis of speech sample from 212 patient with known medical dx and abnormal speech
   - defined neurodiagnostic patient populations
     - bulbar palsy, pseudobulbar palsy, cerebellar lesions, parkinsons, dystonia, chorea, ALS
   - identified 38 speech and voice dimensions
   - rated dimensions on 7 point scale
   - compared “clusters” across groups

5. **What would you listen for?**

6. **Speech dimensions**
   - dimensions are foundation for understanding dysarthria
   - also included some nonspeech dimensions assumed relevant
     - AMR’s for example

7. **Results of research**
   - identification of “clusters” of deviant speech characteristics
   - overlap of features
   - clusters = tendency for certain deviant characteristics to co-appear in certain groups
   - each group had unique pattern of clusters

8. **Application of findings to Dx**
   - rating scale derived from research
   - basic diagnostic tool to perform perceptual speech exam
   - use of 5 point scale
     - 0 = normal, 4 = severe

9. **Speech and Voice Dimensions**
   - 38 dimensions
   - related to pitch, loudness, voice and resonance, respiration, prosody and articulation
   - two overall dimensions: intelligibility and bizarreness
Identifying and Rating Speech Dimensions

- To quantify your perceptions, use rating of deviancy of speech dimensions
- Suggested rating scale: 5 point scale, 0-4 (0-normal—4=severe); to expand scale, use equivocal scoring (2,3)=moderate, marked, (0,1) normal to mild etc.

Tasks for Assessment

Vowel prolongation
- purpose: assess respiratory and phonatory systems
  - measure maximum duration
  - judge: lst three scales on rating sheet
  - pitch, loudness and voice quality

Alternating motion rates (AMR) (diadochokinetic rates)
- purpose: to determine the speed and regularity of movement, accuracy of articulation, vp closure, respiratory/phonatory support.

AMR tasks
- “puh-puh-puh”, tuh-tuh-tuh and kuh-kuh-kuh
- 3 to 5 sec samples for each
- norms
- Rating: (-) for scores below norm; (+) for scores above norm. Mild slow = -1, mild fast = +1.

Sequential motion rate – SMR
- ability to move quickly from one articulatory position to another.
- Purpose: Same as AMR
  Task: ‘puh-tuh-kuh’ “for as long as you can”
- Norms

Contextual speech
- conversational or narrative speech and reading paragraph
- Purpose: to assess integrated function of respiration, phonation, articulation and resonance.
- Task: Interview, open ended questions, reading passage

Stress Testing
- perform selectively re: LMN lesions or patient complaint
- purpose: assess effect of fatigue on production
- task: “count for 2 to 4 minutes”
- normal rate: 2 digits/second
Motor Programming

- optional re: presenting symptomatology
- recommended with observation of:
  - articulatory substitutions, omissions, distortions, repetitions and additions
  - other suspect signs of effort, dominant hemisphere pathology

Tasks

- for mild or moderate
- for severe, automatic utterances (singing, counting) imitation