Supporting clinical decisions with physiologically guided metrics
Clinical Decisions

Both needed

Objective    Subjective
Clinical Decisions

Balance

Objective

Subjective

patient report
palpation
diet
Clinical Decisions

Balance

Objective
- lab values
- aspiration presence
- mm of hyoid movement

Subjective
Dysphagia Management

Objective
- confirm swallow
- confirm aspiration
- swallowing metrics (msec, mm)

Subjective
- patient report
- clinical exam
- palpation
- diet
Objective

Numeric Value

Obvious Judgement

Reliability
(within-person & between-person)

Validated

Normative Values

metric units, ranking, scoring measure

millimeters, counting, seconds
Objective

Numeric Value
metric units, ranking, scoring measure

Obvious Judgement
highly reliable observation: death, amputee

Reliability
(within-person & between-person)

Validated

Normative Values
Objective

Numeric Value
- metric units, ranking, scoring measure

Obvious Judgement
- highly reliable observation: death, amputee

Reliability
- (within-person & between-person)

Validated

Normative Values

you and/or someone else would consistently make the same decision

Person 1
Objective

Numeric Value
- metric units, ranking, scoring measure

Obvious Judgement
- highly reliable observation: death, amputee

Reliability
- (within-person & between-person)

Validated
- you and/or someone else would consistently make the same decision

Normative Values

Person 1 - encounter 2
**Objective**

**Numeric Value**
- metric units, ranking, scoring measure

**Obvious Judgement**
- highly reliable observation: death, amputee

**Reliability** (within-person & between-person)
- you and/or someone else would consistently make the same decision

**Validated**

**Normative Values**

**Person 2**
<table>
<thead>
<tr>
<th>Objective</th>
<th>Numeric Value</th>
<th>Obvious Judgement</th>
<th>Reliability</th>
<th>Validated</th>
<th>Normative Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>metric units, ranking, scoring measure</td>
<td>highly reliable observation: death, amputee</td>
<td>you and/or someone else would have the same outcome across multiple judgements</td>
<td>this judgement actually measures what you think it measures</td>
<td>Normal values can be differentiated from abnormal values</td>
</tr>
</tbody>
</table>
Each of us can do a clinical exam

But how objective vs subjective is it?
<table>
<thead>
<tr>
<th>Function</th>
<th>OBJ</th>
<th>SBJ</th>
<th>Neither!</th>
</tr>
</thead>
<tbody>
<tr>
<td>lingual strength (non swallow)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lingual strength (swallow)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>swallow presence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aspiration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>swallow delay</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>hyo-laryngeal ROM</td>
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<td></td>
</tr>
</tbody>
</table>

**Clinical Examination**

**Objective**
- Numeric Value: metric units, ranking, scoring measure
- Obvious Judgement: highly reliable observation: death, amputee
- Reliability: you and/or someone else would have the same outcome across multiple judgements
- Validated: this judgement actually measures what you think it measures
- Normative Values: Normal values can be differentiated from abnormal values