Forced Spirometry

**Breathing Maneuvers**

**ERV-Effort**

**Flow-Volume-Curve**

**IC-Effort**

**Parameters**

<table>
<thead>
<tr>
<th>Description</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forced expiratory volume in 1 second</td>
<td>FEV1</td>
</tr>
<tr>
<td>Forced vital capacity</td>
<td>FVC</td>
</tr>
<tr>
<td>Tiffeneau index: FEV1 in % of forced vital capacity</td>
<td>FEV1 % FVC</td>
</tr>
<tr>
<td>Peak expiratory flow</td>
<td>PEF</td>
</tr>
<tr>
<td>Mean forced expiratory flow between 25% and 75% of FVC</td>
<td>FEF25 – 75</td>
</tr>
<tr>
<td>Forced expiratory flow when 25% of FVC has been exhaled</td>
<td>FEF25</td>
</tr>
<tr>
<td>Forced expiratory flow when 75% of FVC has been exhaled</td>
<td>FEF75</td>
</tr>
<tr>
<td>Inspiratory capacity</td>
<td>IC</td>
</tr>
<tr>
<td>Inspiratory reserve volume</td>
<td>IRV</td>
</tr>
<tr>
<td>Expiratory reserve volume</td>
<td>ERV</td>
</tr>
<tr>
<td>Tidal volume</td>
<td>VT</td>
</tr>
<tr>
<td>Breathing frequency</td>
<td>BF</td>
</tr>
</tbody>
</table>

**Flow Assessment of the Flow-Volume-Loop**

**Quality Check**

1. Flow accelerating phase ➞ STEEP
2. Flow limitation phase ➞ REPRODUCIBLE
3. End of expiration ➞ FLOWED OUT
4. Hesitation
5. Coughing
6. Premature termination
7. Slow exhalation
8. Incomplete exhalation
9. Volume drift
10. Leaks at mouth
11. Incomplete inhalation

**Error Markers**

**Typical Flow-Volume-Loop Pattern in Health and Disease**

- **Obstruction**
- **Collapse**
- **Healthy**
- **Restriction**
- **Stenosis**
- **Vocal Cord Dysfunction**
- **Bronchodilator Reversibility Testing**

- **No**
- **Partial**
- **Complete**

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