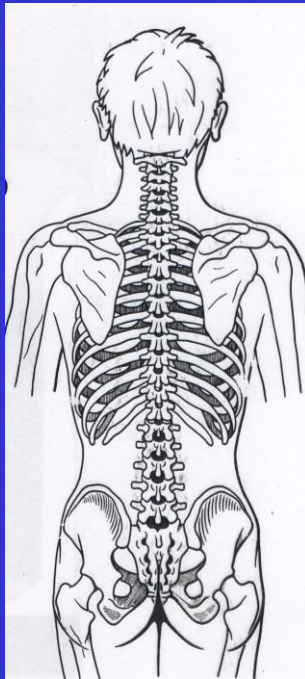


# Assessing dysfunctional breathing: distribution of breathing movement

10<sup>th</sup> annual meeting of ISARP,  
22-24nd September, Leuven, Belgium

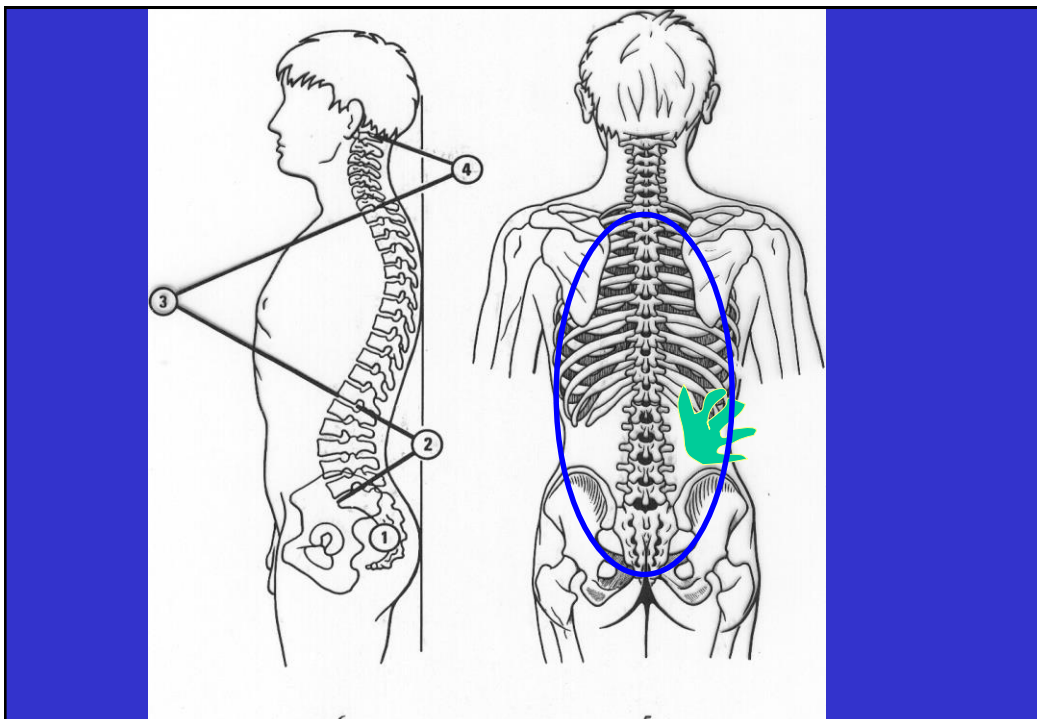
Dr JJ van Dixhoorn



## Procedure

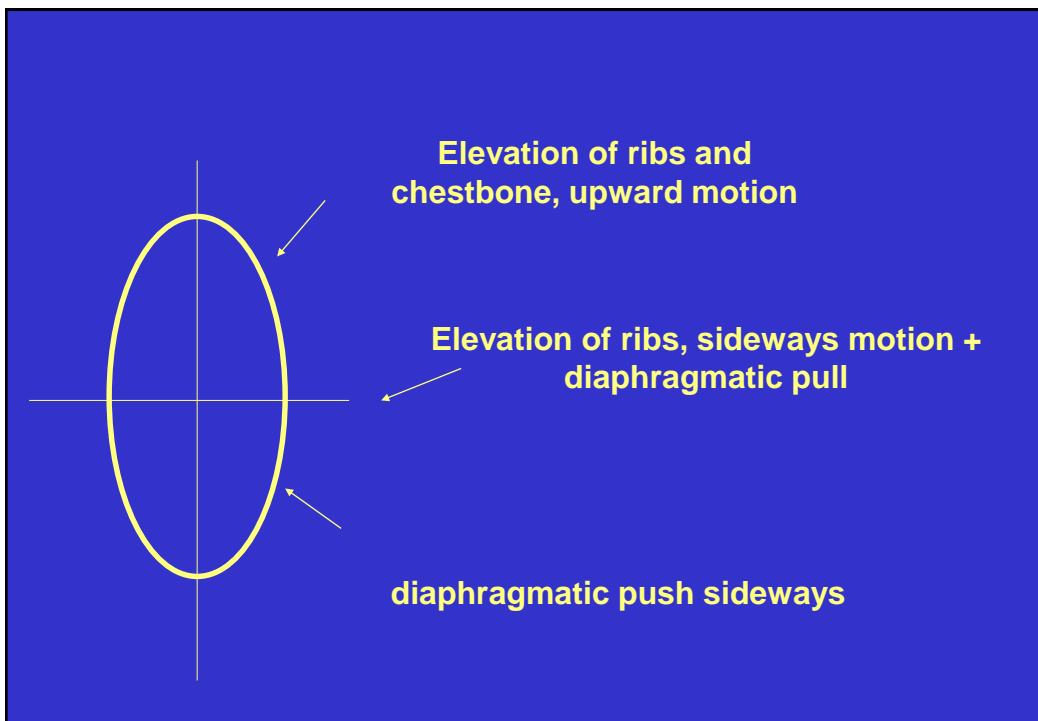
S. sits on flat stool, E. sits behind

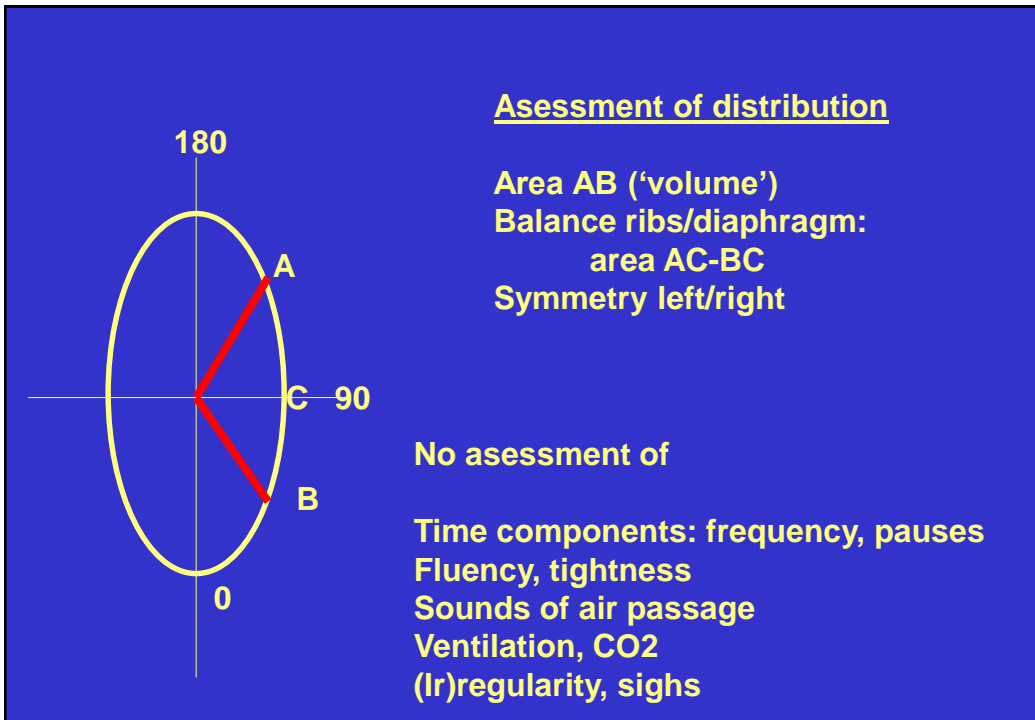
- Pass hand along spinal column, feel curvature and posture
- Put palms of hands alongside lumbar spinal column
- Thumbs vertical, parallel, at about T11
- 2<sup>nd</sup> and 3<sup>rd</sup> fingers at lower ribs
- 4<sup>th</sup> and 5<sup>th</sup> finger below ribs



## Procedure

- Notice area of sideways expansion during inhalation
- Notice elevation of ribs
- Notice expansion below the ribs





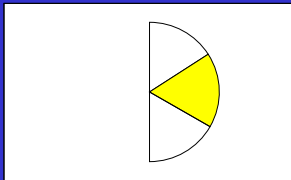
## Advantages

- Chest and abdominal compartments measured at once
- Palpation at backside is more outside conscious awareness-> less voluntary control or interference
- Spinal column is assessed as well -> third degree of freedom of breathing-> spinal extension = elevating chest

## Assessment of 6 subjects, students of breathing therapy

Each assessed twice

Interrater reliability: 0.75 – 0.98



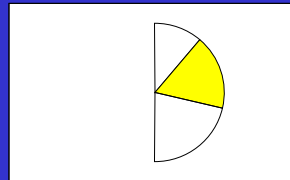
$123 \pm 8,4$

$60 \pm 7.5$

**Sitting a bit slump**

Area: 63

Balance:  $33 - 30 = 3$



$139 \pm 8,4$

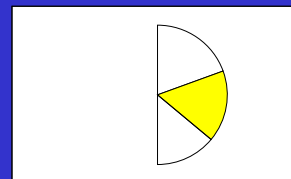
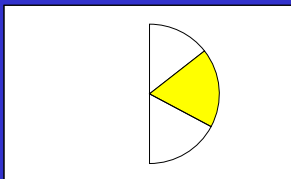
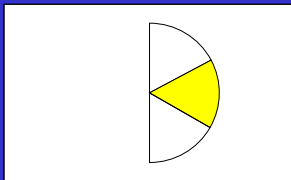
$77 \pm 16.1$

**Sitting up straight**

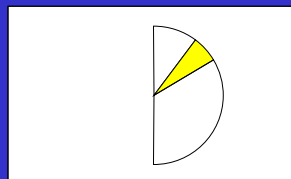
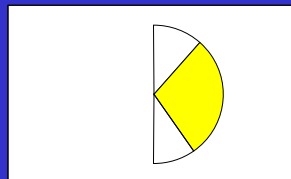
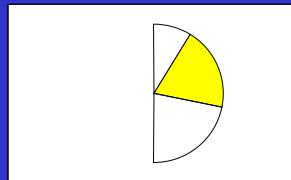
Area: 62

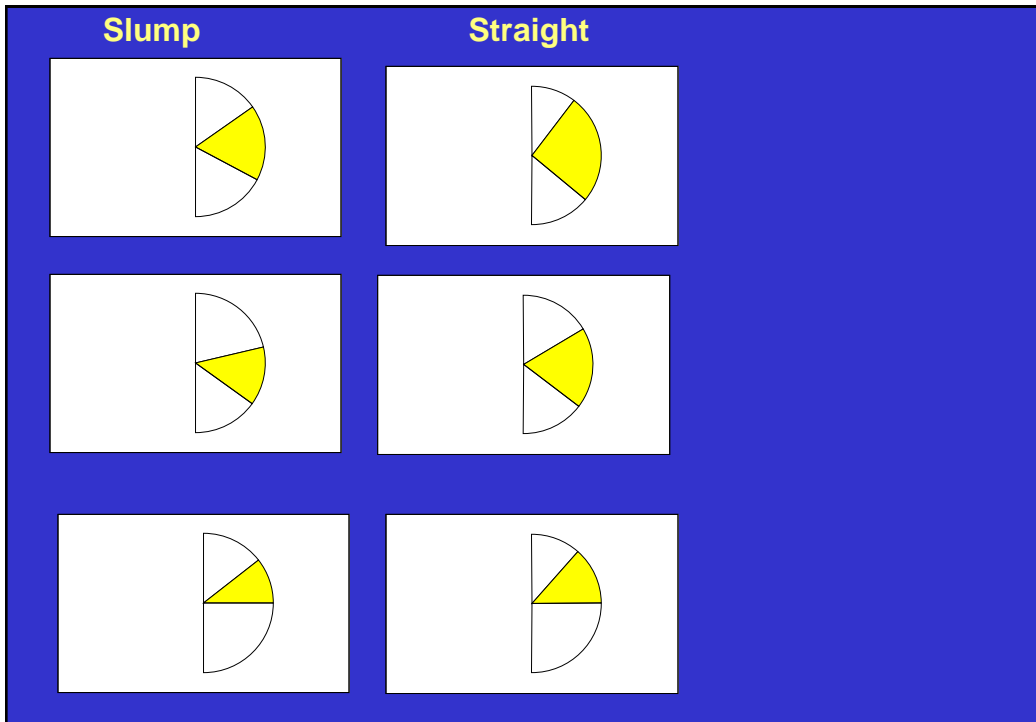
Balance:  $49 - 13 = 36$

**Slump**



**Straight**

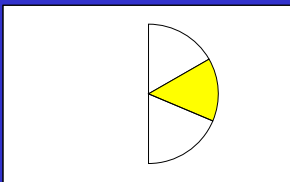




### Assessment of 12 subjects, students of breathing therapy

Each assessed twice

Interrater reliability: 0.78 – 0.98



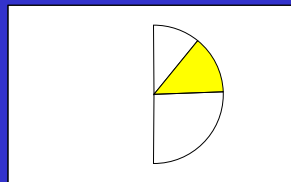
Sitting a bit slump

120 ± 8

67.4 ± 9.9

Area: 52

Balance: 30-22=8



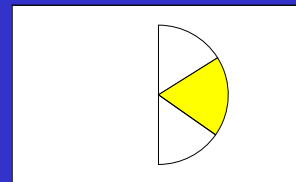
Breathing 'high'

140 ± 8.1

92.5 ± 18.6

Area: 48

Balance: 50+2=52



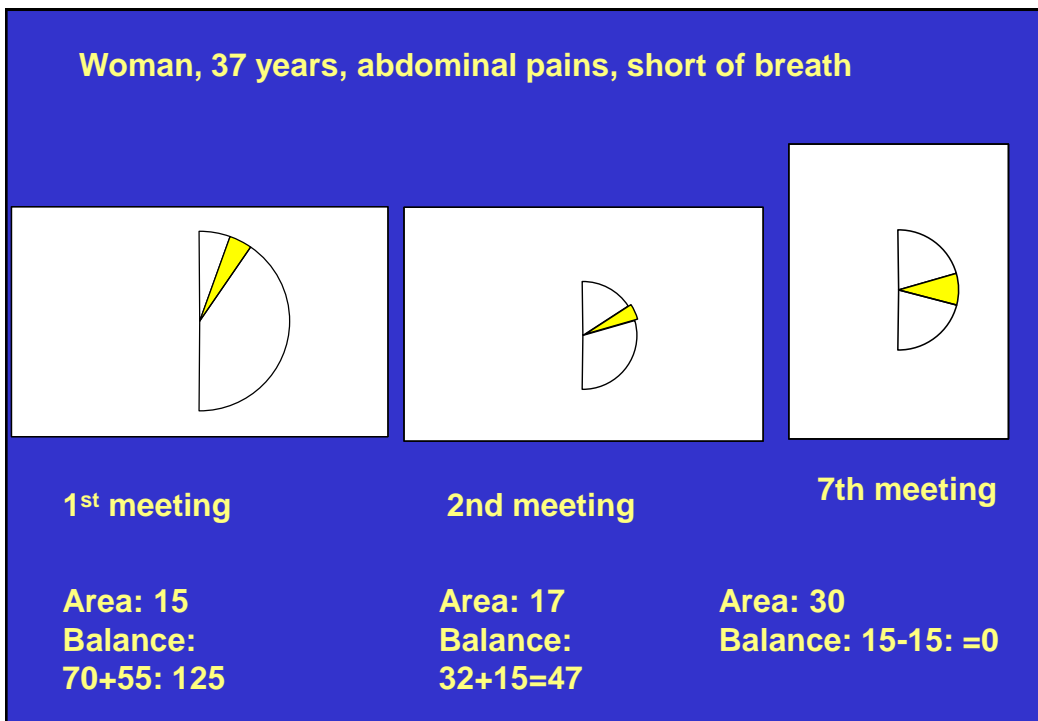
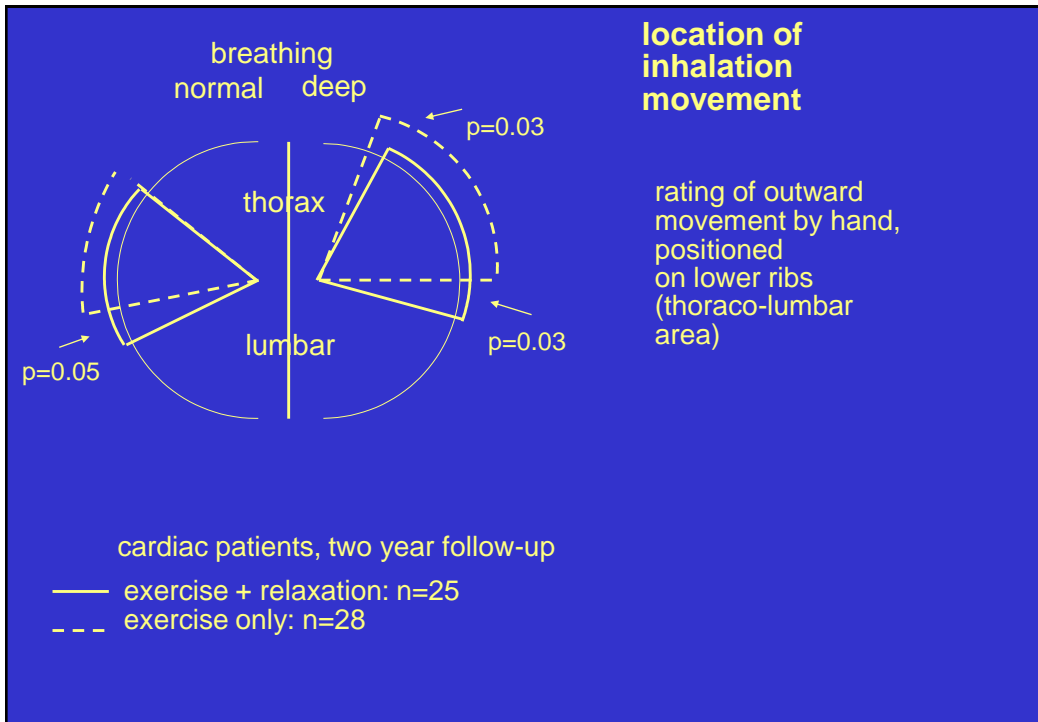
After exhaling through  
lips

122.4 ± 11.6

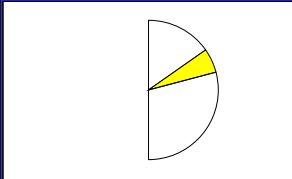
55.2 ± 10.6

Area: 67

Balance: 32-35=-3



**Woman, 34 years, short of breath, attacks of dizziness**

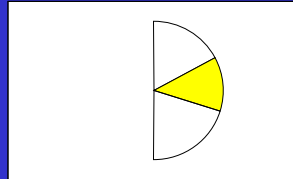


**NQ: 47**

**1<sup>st</sup> meeting**

**Area: 20**

**Balance: 50**

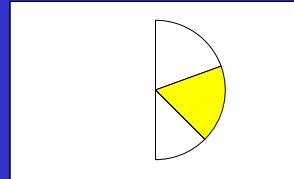


**NQ: 27**

**2<sup>nd</sup> meeting**

**Area: 46**

**Balance: 10**



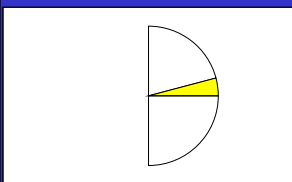
**NQ: 20**

**3<sup>rd</sup> meeting**

**Area: 65**

**Balance: -25**

**Woman, 34 years, shortness of breath: largely disappeared,  
attacks of dizziness ->pressure in head**

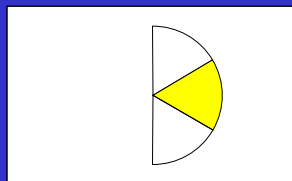


**After flu**

**4<sup>th</sup> meeting**

**Area: 15**

**Balance: 15**



**Two month follow-up**

**5<sup>th</sup> meeting**

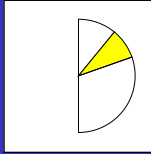
**NQ: 11**

**Area: 60**

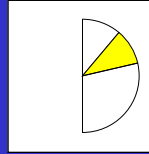
**Balance: 0**



### Woman, 44 years, shortness of breath

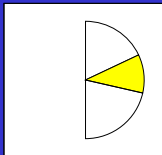


Area: 31  
Balance: 71

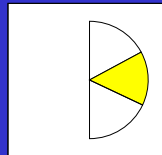


Area: 37  
Balance: 63

*beginning*



Area: 38  
Balance: 12



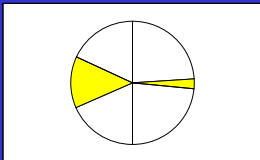
Area: 53  
Balance: 3

*end of session*

1st meeting

2nd meeting

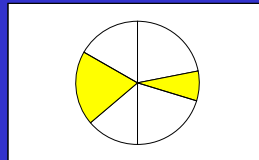
### Woman, 59 years, difficulty breathing since early age



NQ: 36

1st meeting

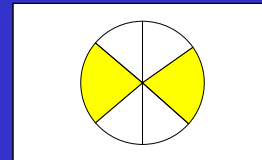
Area:  
L: 49 R: 10  
Balance:  
L: -1 R: -2



NQ: 31

4th meeting

Area:  
L: 70 R: 28  
Balance:  
L: 10 R: -6



NQ: 26

12<sup>th</sup> meeting

Area:  
L: 80 R: 77  
Balance:  
L: 0 R: -7

## Conclusions

- For an experienced / trained palpator the method is reliable
- It is sensitive to respiratory manoeuvres (direct and indirect through posture / attention) and shows treatment effects
- This supports its validity

## Question:

### Is it a valid test for Dysfunctional Breathing?

- Do ss with breathing difficulty ( 'dyspnoe'), with or without lung disease, differ from others in this assessment?
- Does a change in this assessment coincide with improvement of dyspnoe symptoms?
- Is there an optimal distribution, a 'norm', given a certain posture, for instance, are smaller number for balance and larger area better?