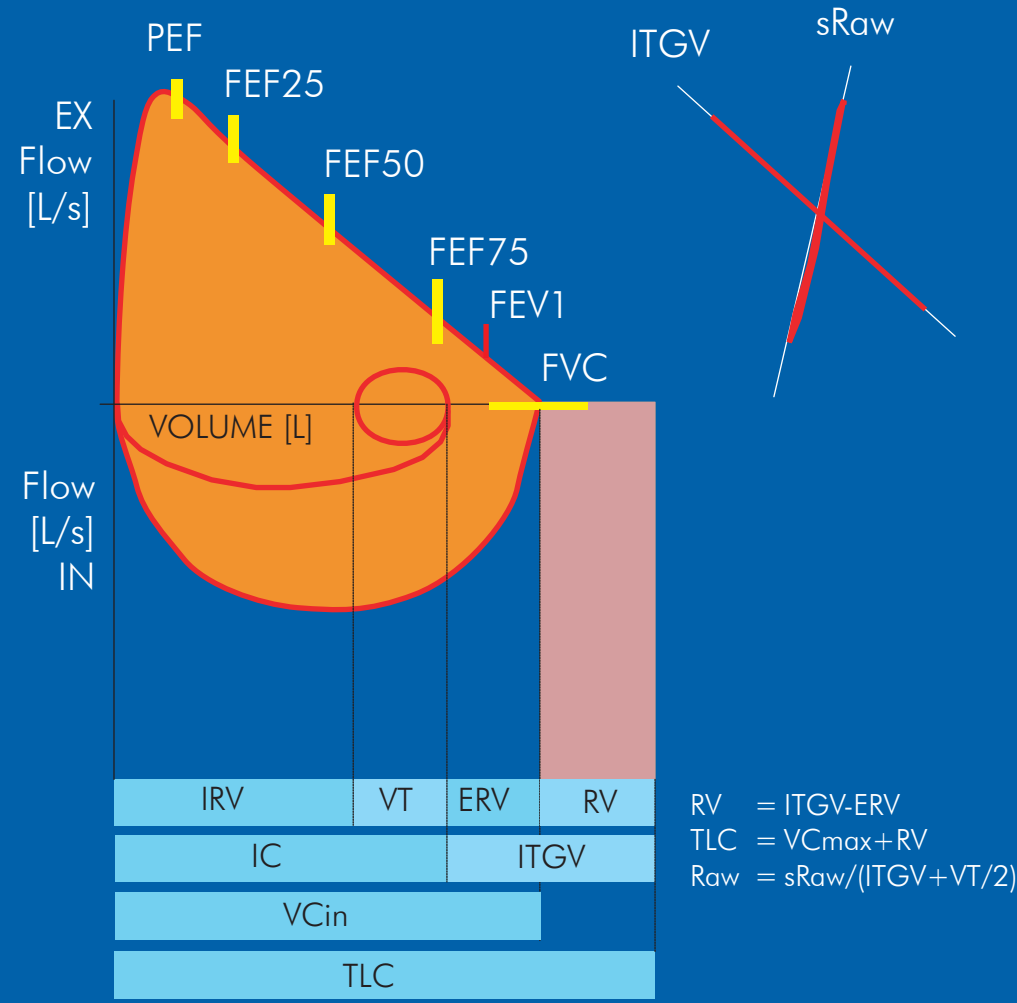


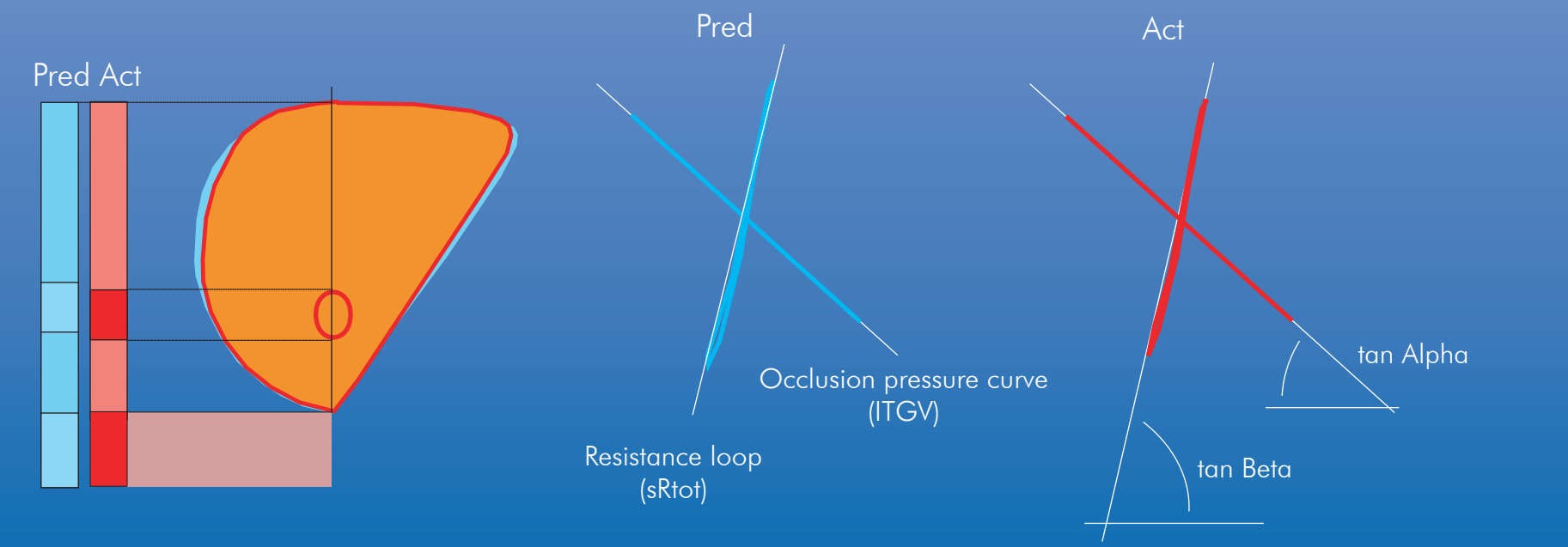
# Parameterdefinition



- VCin = Inspiratory Vital Capacity
- VCmax = Maximal Vital Capacity
- IC = Inspiratory Capacity
- VT = Tidal Volume
- IRV = Inspiratory Reserve Volume
- ERV = Expiratory Reserve Volume
- FVC = Forced Vital Capacity
- FEV1 = Forced Expiratory Volume after 1s
- FEV1 %VCmax = FEV1 in percent of VCmax
- PEF = Peak Expiratory Flow
- FEF75 = Forced Exp. Flow at 75% of VCmax
- FEF50 = Forced Exp. Flow at 50% of VCmax
- FEF25 = Forced Exp. Flow at 25% of VCmax
- PIF = Peak Inspiratory Flow
- TLC = Total Lung Capacity
- RV = Residual Volume
- ITGV = Intrathoracic Gas Volume
- sReff = Specific Effective Airway Resistance
- Reff = Effective Airway Resistance
- sRtot = Specific Total Airway Resistance
- Rtot = Total Airway Resistance
- Raw = Rtot oder Reff oder R0.5

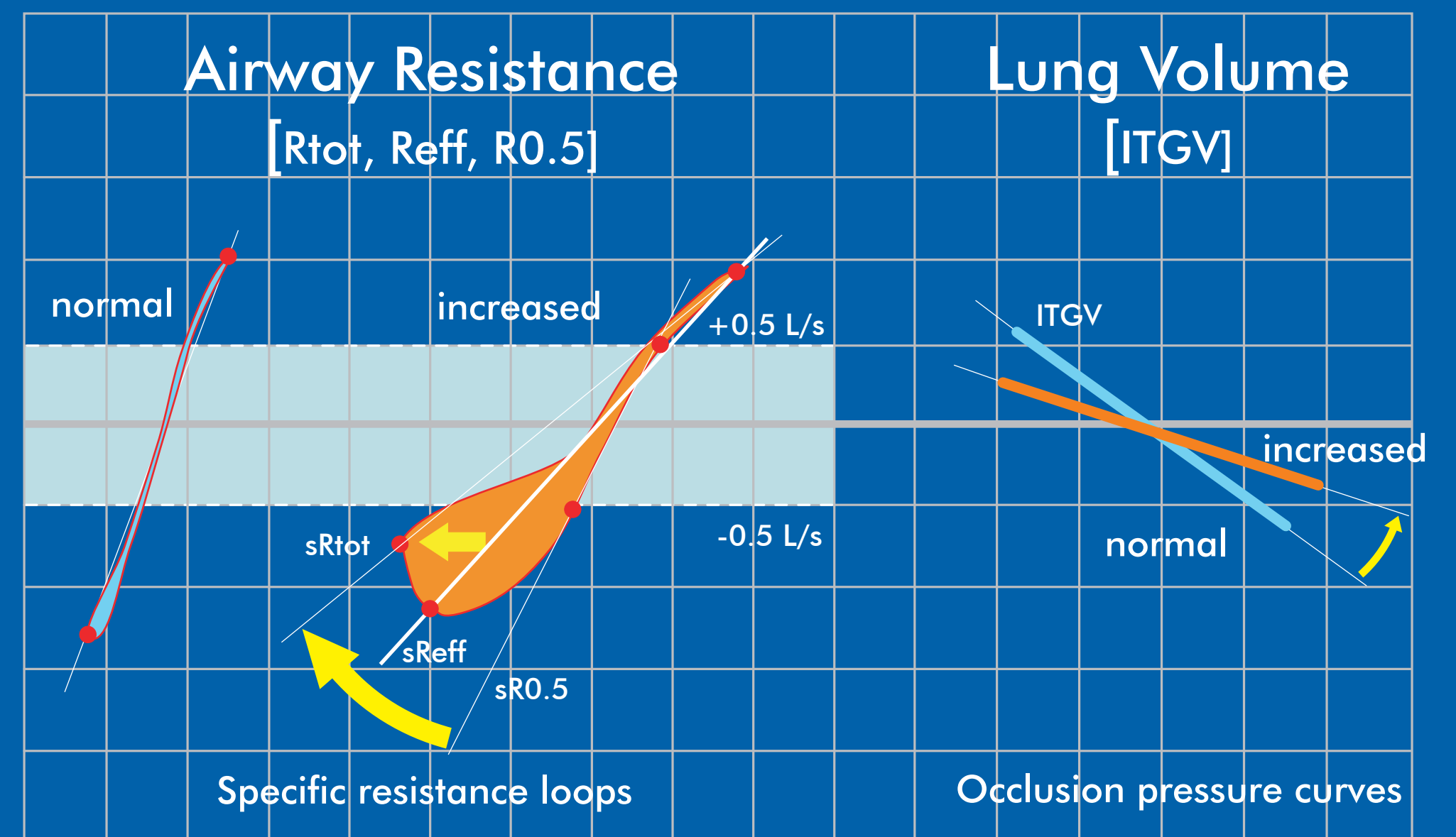
RV = ITGV-ERV  
 TLC = VCmax+RV  
 Raw = sRaw/(ITGV+VT/2)

# Normal Curves

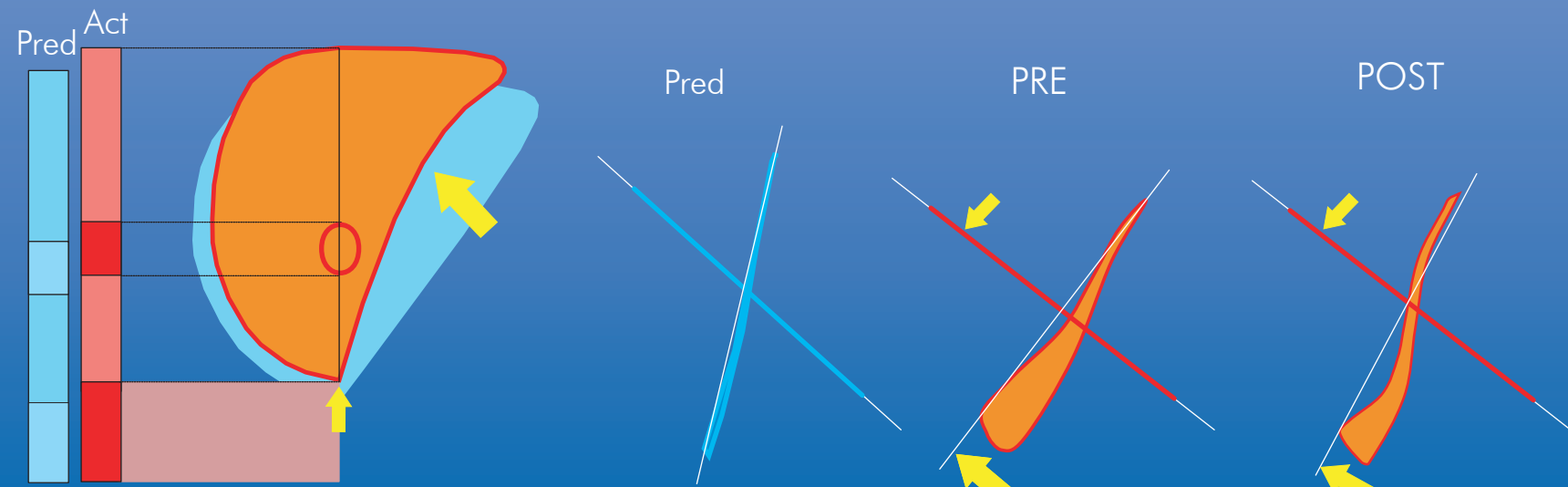


The inspiratory portion of the Flow-Volume curve has the shape of a crescent. The expiratory portion of the curve is triangle-shaped and shows a linear decrease in flow. All dynamic lung volumes (FEV1, FVC, VC, ...), flow values (FEFxx, PEF, ...), static lung volumes (TLC, ITGV, RV, ERV, ...) and the resulting airway resistance (Raw) are within the individual normal range. The loops of specific resistance (tan Beta) and the occlusion pressure curves (tan Alpha) show a normal angle of inclination.

# Interpretation of Bodyplethysmography and Forced Spirometry in Health and Disease

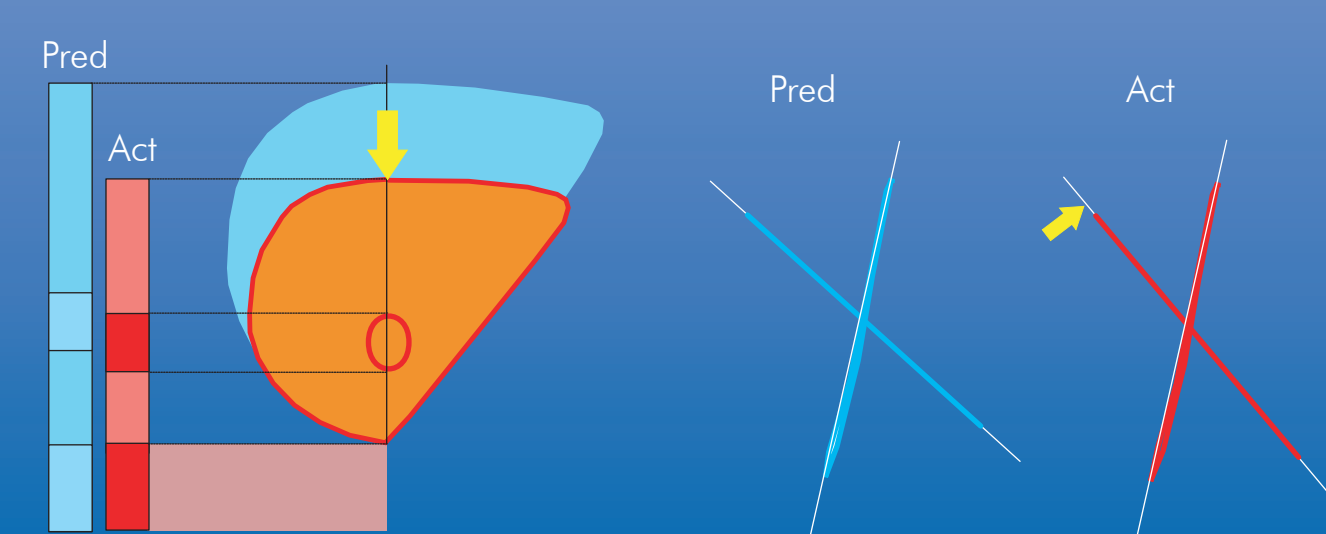


## Obstruction



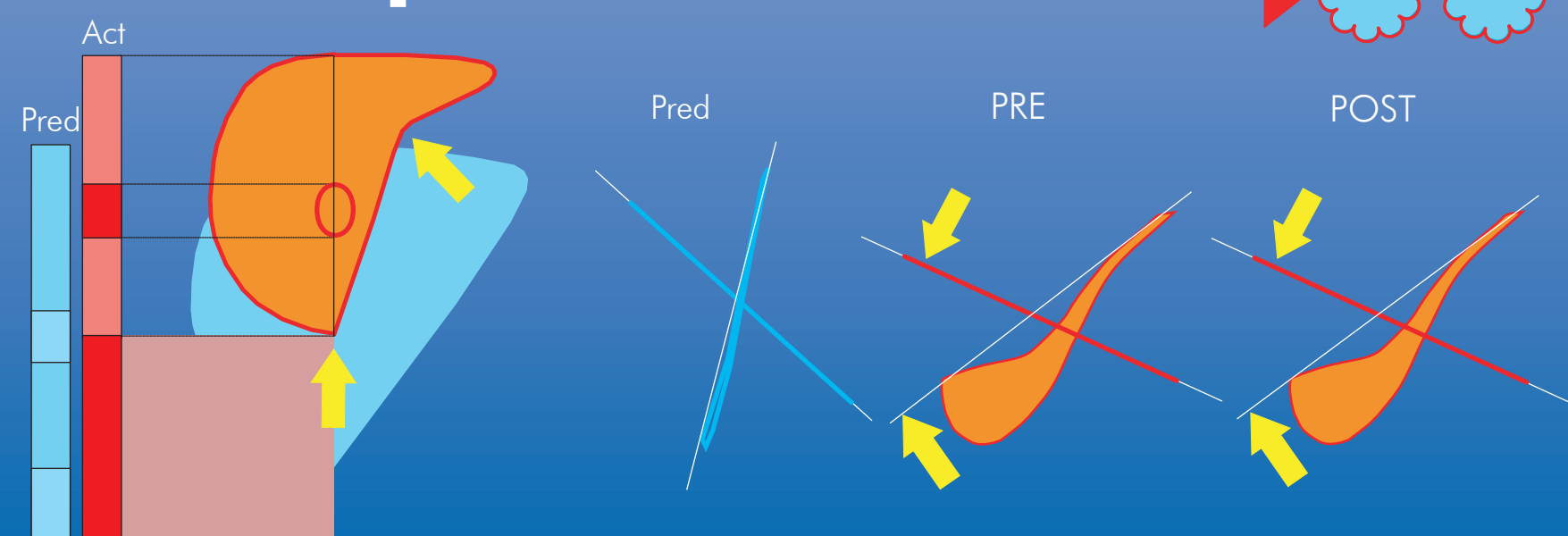
Obstructive ventilatory disorders produce a concave Flow-Volume curve representing the impaired expiratory flows (FEFxx) via the entire expiratory portion. As compared to the predicted value, the bar diagram reveals a slight increase in residual volume (RV). The airway resistance (Raw) is increased. The open and flat specific resistance loops indicate an obstruction, which is partially reversible after having administered a spasmolytic.

## Restriction



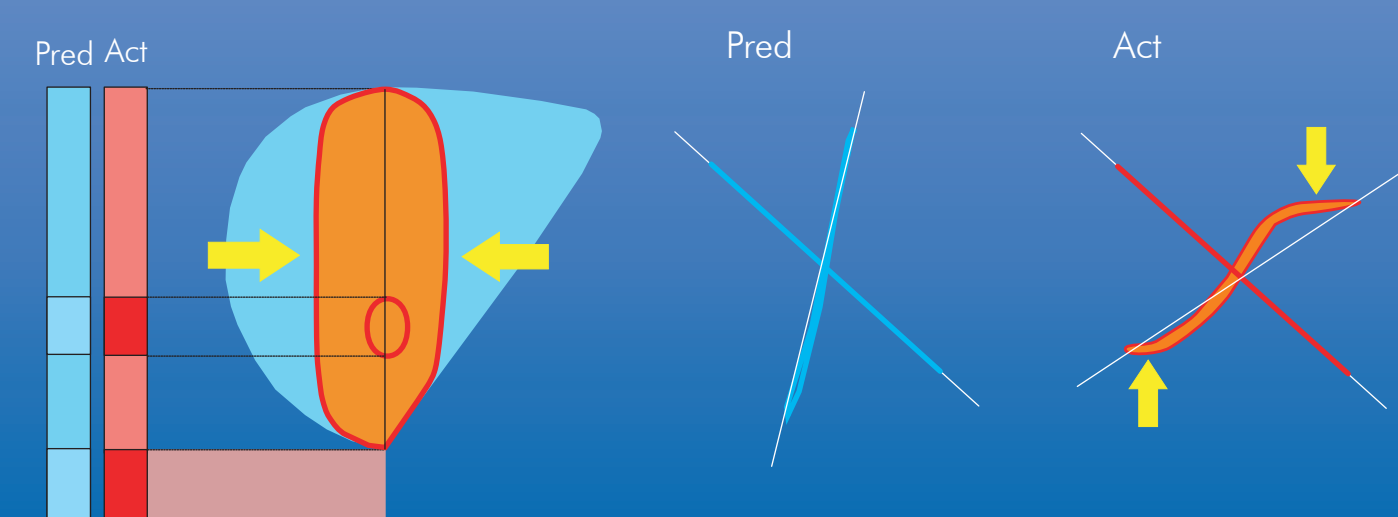
Flow-Volume curves produced by restrictive ventilatory disorders have an almost normal shape. However, vital capacity (VC) is considerably reduced and flows (FEFxx) are restricted. The curves obtained by bodyplethysmography have a shape typical for restrictive ventilatory disorders: normal airway resistance (Raw), steep specific resistance loop and a reduced total lung volume (TLC) as well as a decreased intrathoracic gas volume (steep occlusion pressure curve (ITGV)).

## Collapse



The expiratory portion of the Flow-Volume curve shows the typical bend of severely impaired expiratory flow. The bar diagram indicates a considerably increased residual volume (RV), intrathoracic gas volume (ITGV), and total lung capacity (TLC). The airway resistance (Raw) is clearly increased. Typically club-shaped specific resistance loops give evidence of an expiratory airway collapse. Very flat occlusion pressure curves indicate an increased intrathoracic lung volume. The curves cannot be reversed after having administered a spasmolytic.

## Stenosis



The degree of deformation of the Flow-Volume curve depends on the kind of stenosis. Often, both inspiration and expiration are impaired (FEFxx, MIFxx and FEV1 are considerably reduced). Airway resistance (Raw) is always clearly increased and the specific resistance loops exhibit a typical S-shape.