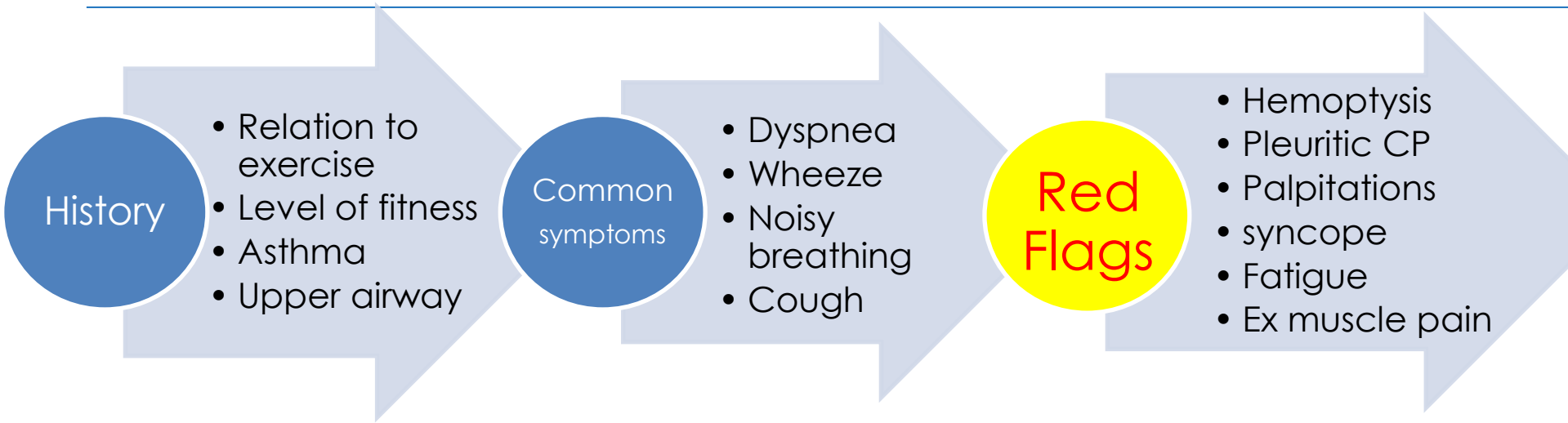
EXERCISE INDUCED ~~ASTHMA~~ BRONCHOCONSTRICTION

Dr Abhilash Sahadevan 13.09.25

Beacon Hospital

THIS IS MODERN MEDICINE

Exercise Associated Respiratory Symptoms



DIAGNOSIS

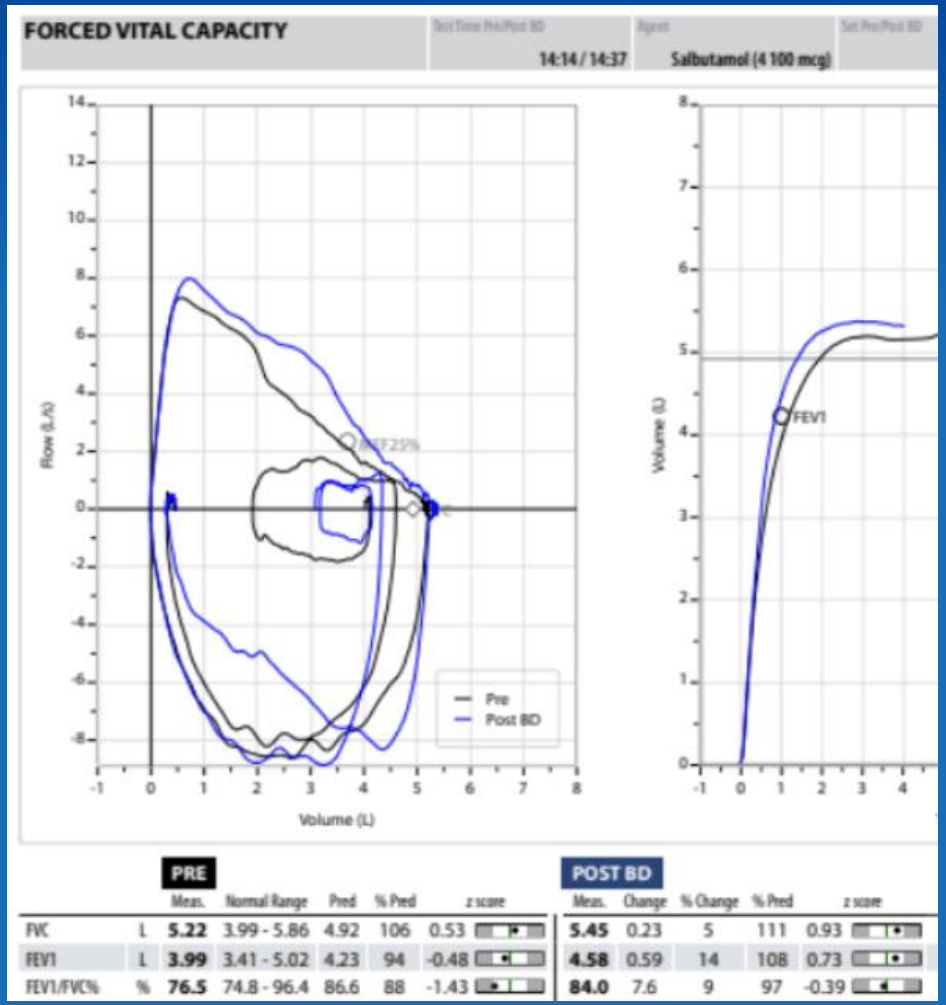
1. Therapeutic trial
2. Selfie type video
3. Inflammation: Blood eos, total IgE
4. PFTs, exercise testing or direct provocation testing

Beacon Hospital

Case 1: 21yo severe wheeze during exercise

- County football player. Lifelong asthmatic-allergic rhinitis. Non smoker
- Recent ED visit with an asthma flare.
- Budesonide-formoterol 160 BD, Salbutamol pre+ post exercise
- PRN Dymista + Drynol

- Bloods: Hb 15, blood eosi: 0.5, total IgE 114
- ECG normal
- Pft: 14% BDR
- Feno:



GP OR SPECIALIST CARE

Investigate and manage difficult-to-treat asthma in adults and adolescents

Consider referring to specialist or severe asthma clinic at any stage

DIAGNOSIS: *"Difficult-to-treat asthma"*

For adolescents and adults with symptoms and/or exacerbations despite medium or high dose ICS-LABA, or taking maintenance OCS

1 Confirm the diagnosis (asthma/differential diagnoses)

2 Look for factors contributing to symptoms, exacerbations and poor quality of life:

- Incorrect inhaler technique
- Suboptimal adherence
- Comorbidities including obesity, GERD, chronic rhinosinusitis, OSA, inducible laryngeal obstruction
- Modifiable risk factors and triggers at home or work, including smoking, environmental exposures, relevant allergen exposure, medications such as beta-blockers and NSAIDs
- Overuse of SABA relievers
- Medication side effects
- Anxiety, depression and social difficulties

3 Optimize management, including:

- Asthma education
- Optimize treatment: check and correct inhaler technique and adherence; switch to ICS-formoterol maintenance and reliever therapy, (MART), if available
- Consider non-pharmacological interventions (e.g. smoking cessation, exercise, weight loss, mucus clearance, influenza and other vaccinations, mitigate exposure to respiratory viruses)
- Treat comorbidities and modifiable risk factors
- Consider non-biologic add-on therapy (e.g. LAMA, LM/LTRA, if not already trialed)
- Trial of high dose ICS-LABA for 3–6 months, if not currently used

4 Review response after ~3-6 months

Is asthma still uncontrolled?

yes → DIAGNOSIS: *Severe asthma likely* → If not done by now, refer to a specialist, if possible

no → Consider stepping down treatment, OCS first (if used)

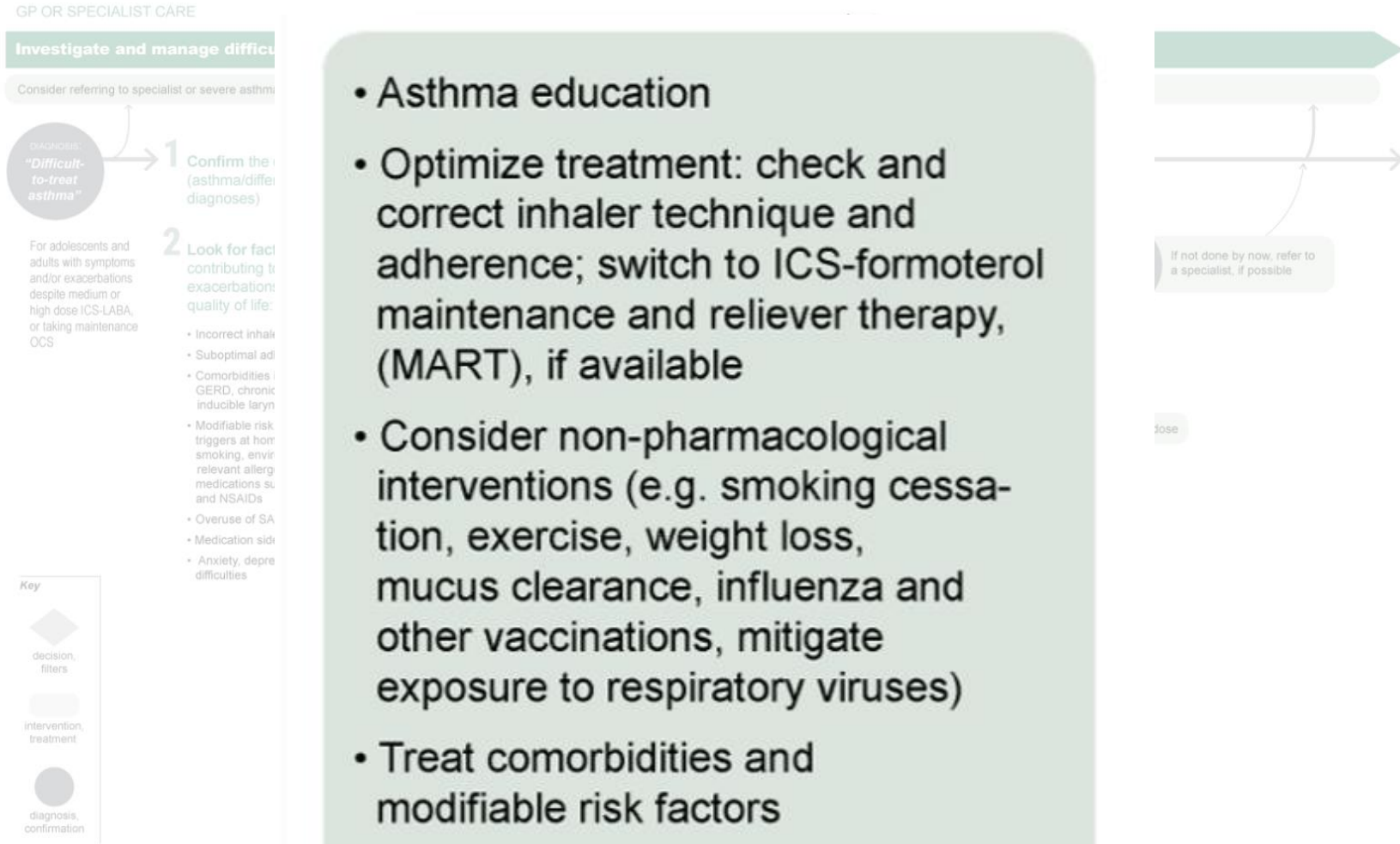
Does asthma become uncontrolled when treatment is stepped down?

yes → Restore previous dose

no → Continue optimizing management

Key

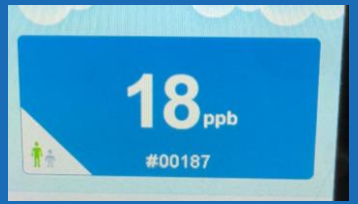
- decision, filters
- intervention, treatment
- diagnosis, confirmation



ICS: inhaled corticosteroids; LABA: long-acting beta2-agonist; LAMA: long-acting muscarinic antagonists; LM: leukotriene modifiers; LTRA: leukotriene receptor antagonists; MART: maintenance-and-reliever therapy with ICS-formoterol

Case 1: 21yo severe wheeze during exercise

- Reinforced technique and adherence
- Emphasised asthma and allergic rhinitis control
- Switched from salbutamol pre and post, to budesonide-formoterol pre-exercise, MART
- 3 M review: Aerobic performance improved. Symptom-free in between sports. EIB better. Feno 178 →



Beacon Hospital

Case 2: 24yo dyspnea during exercise

- Camogie, GP referral
- Hoarseness during these episodes, worried about allergies
- Symbicort stopped working
- Normal PFTs, No BDR, negative mannitol challenge
- Cardiopulmonary exercise test:
- VO2 peak 2350ml/min 120% predicted.

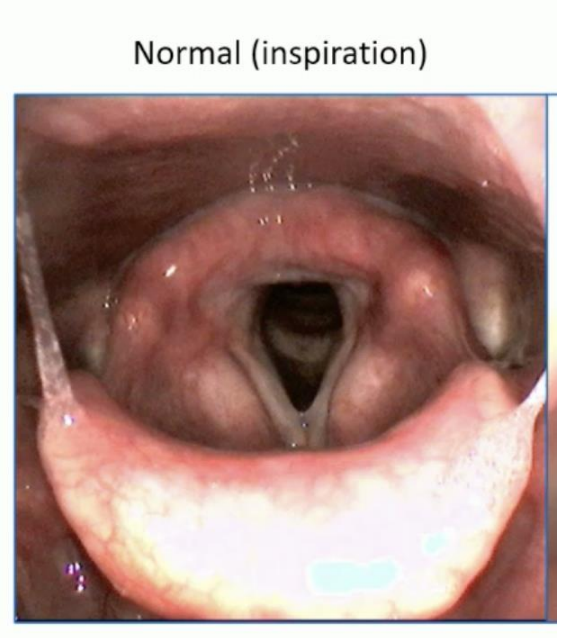
Case 2: 24yo dyspnea during exercise

- Camogie, GP referral
- Hoarseness during these episodes, worried about allergies
- Symbicort stopped working
- Normal PFTs, No BDR, negative mannitol challenge
- Cardiopulmonary exercise test:
- VO2 peak 2350ml/min 120% predicted.

Continuous laryngoscopy during exercise (CLE)

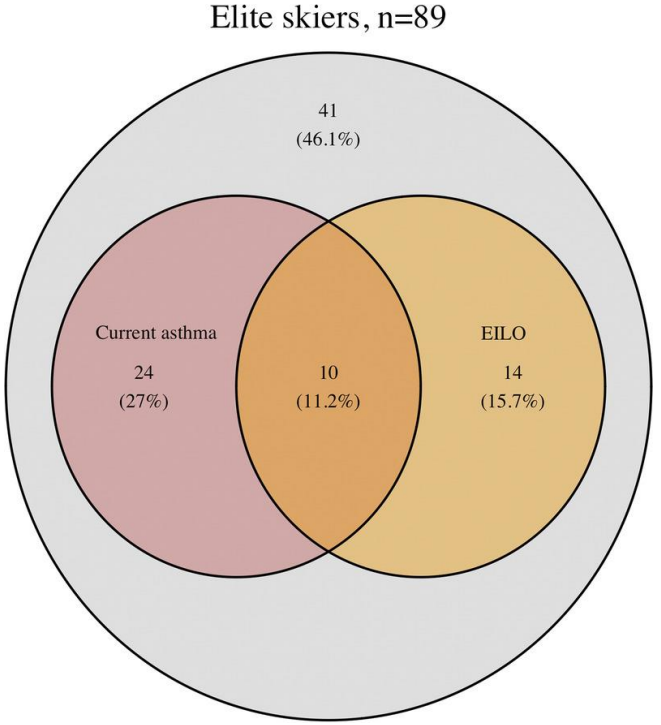
Beacon Hospital

Continuous laryngoscopy during exercise (CLE)



Exercise induced laryngeal obstruction (EILO)

- Transient, reversible narrowing of the larynx during high-intensity exercise
- Highest in adolescents, young adults, female dominance
- Selfie-video : Inspiratory stridor
- Continuous laryngoscopy during exercise (CLE) is gold standard inv.

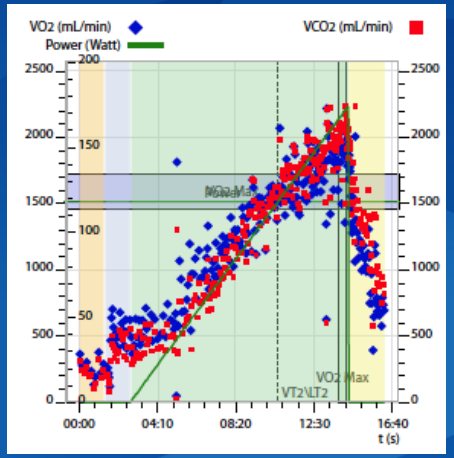


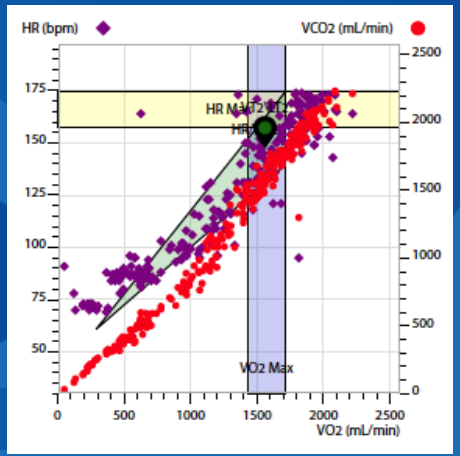
Irewall et al, Med Sci Sports Exerc, 2020 Dec

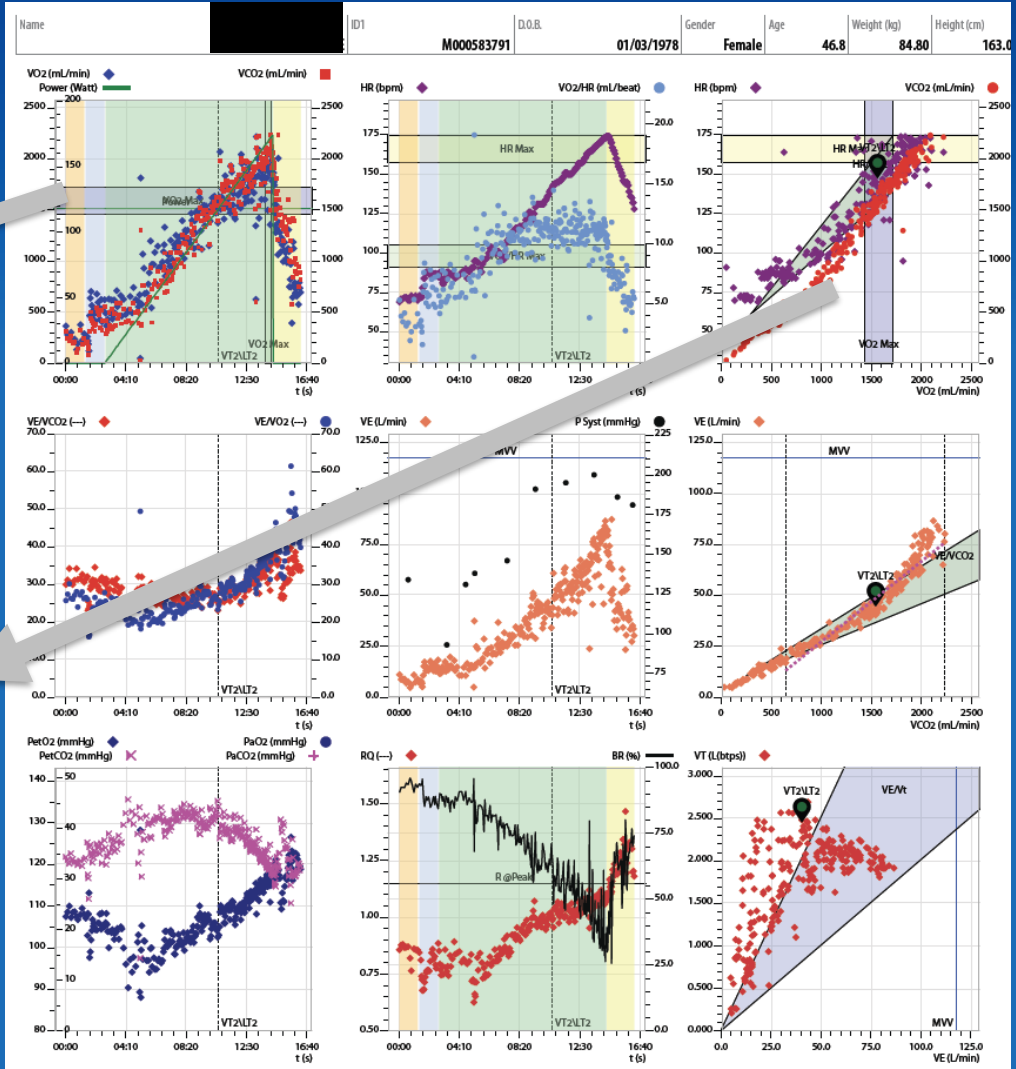
Beacon Hospital

Case 3: 46yo F, exertional dyspnea

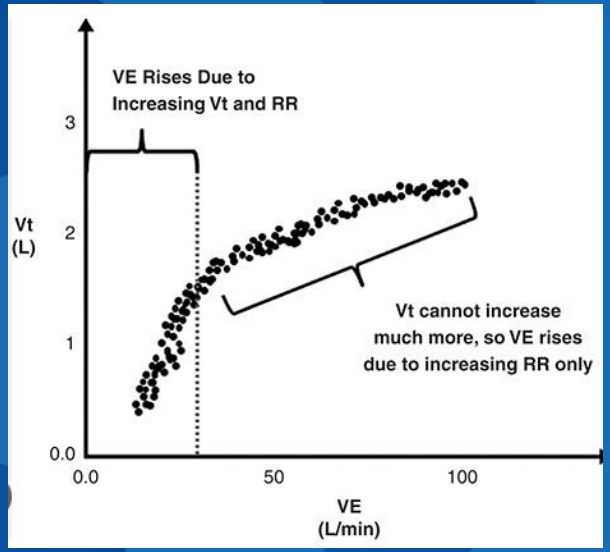
- Cardiology patient: Breathless while talking, walking and stairs
- Viral infection in 2023 with prolonged fatigue
- Ex 20 pack year smoker
- Normal cardiac workup including cardiac MRI
- Alpha 1 antitrypsin deficient 0.76, normal PFTs, normal CT
- CPET: Uncomfortable breathing despite normal VO2 max


VO2 (mL/min)
Power (Watt)
VCO2 (mL/min)
VO2 Max
VT2\LT2
t (s)

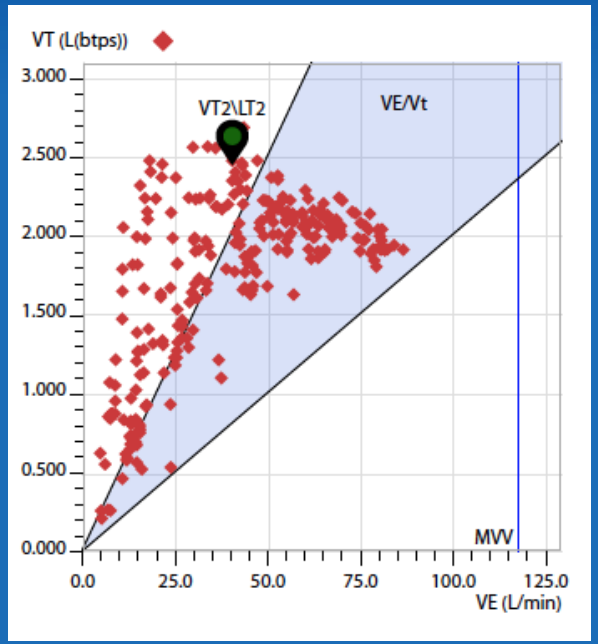

HR (bpm)
VCO2 (mL/min)
HR Max
VO2 Max
VO2 (mL/min)


Name
ID1
M000583791
D.O.B.
01/03/1978
Gender
Female
Age
46.8
Weight (kg)
84.80
Height (cm)
163.0
VO2 (mL/min)
Power (Watt)
VCO2 (mL/min)
HR (bpm)
VO2/HR (mL/beat)
HR Max
VO2 Max
VT2\LT2
VE/VCO2 (---)
VE/VO2 (---)
VE (L/min)
P Syst (mmHg)
MVV
PetO2 (mmHg)
PetCO2 (mmHg)
PaO2 (mmHg)
PaCO2 (mmHg)
RQ (---)
BR (%)
R @Peak
VT (L(btps))
VE/Vt
t (s)

Tidal volume (VT) vs minute ventilation (VE)

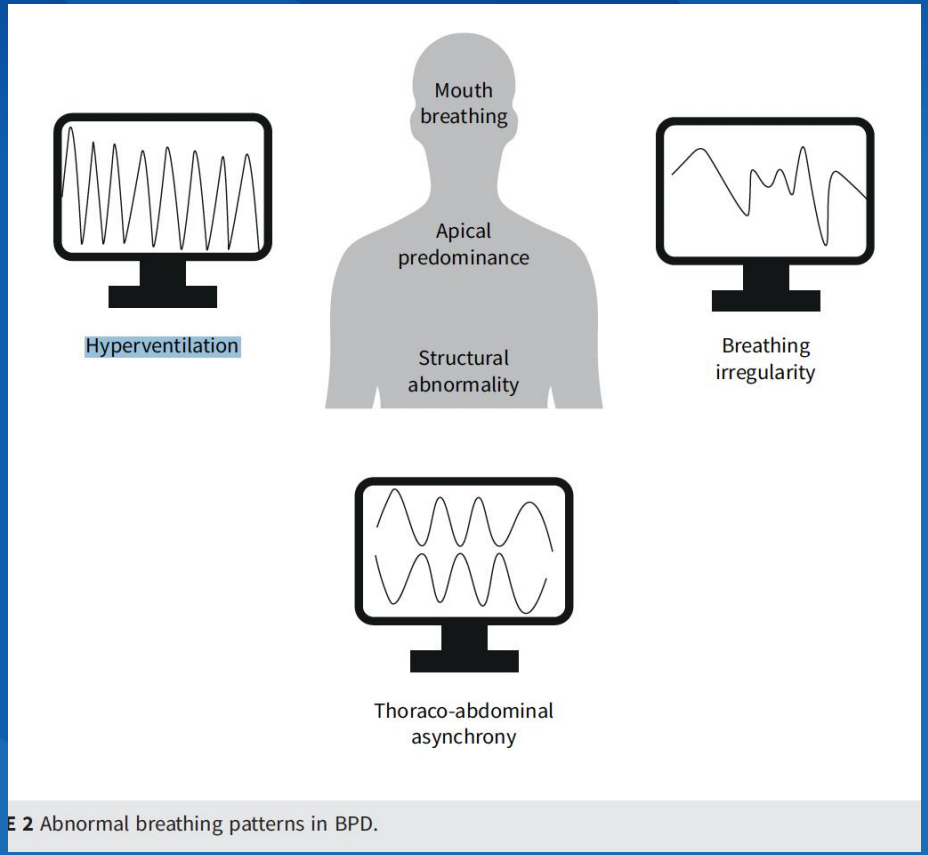


Normal graph
for comparison



Beacon Hospital

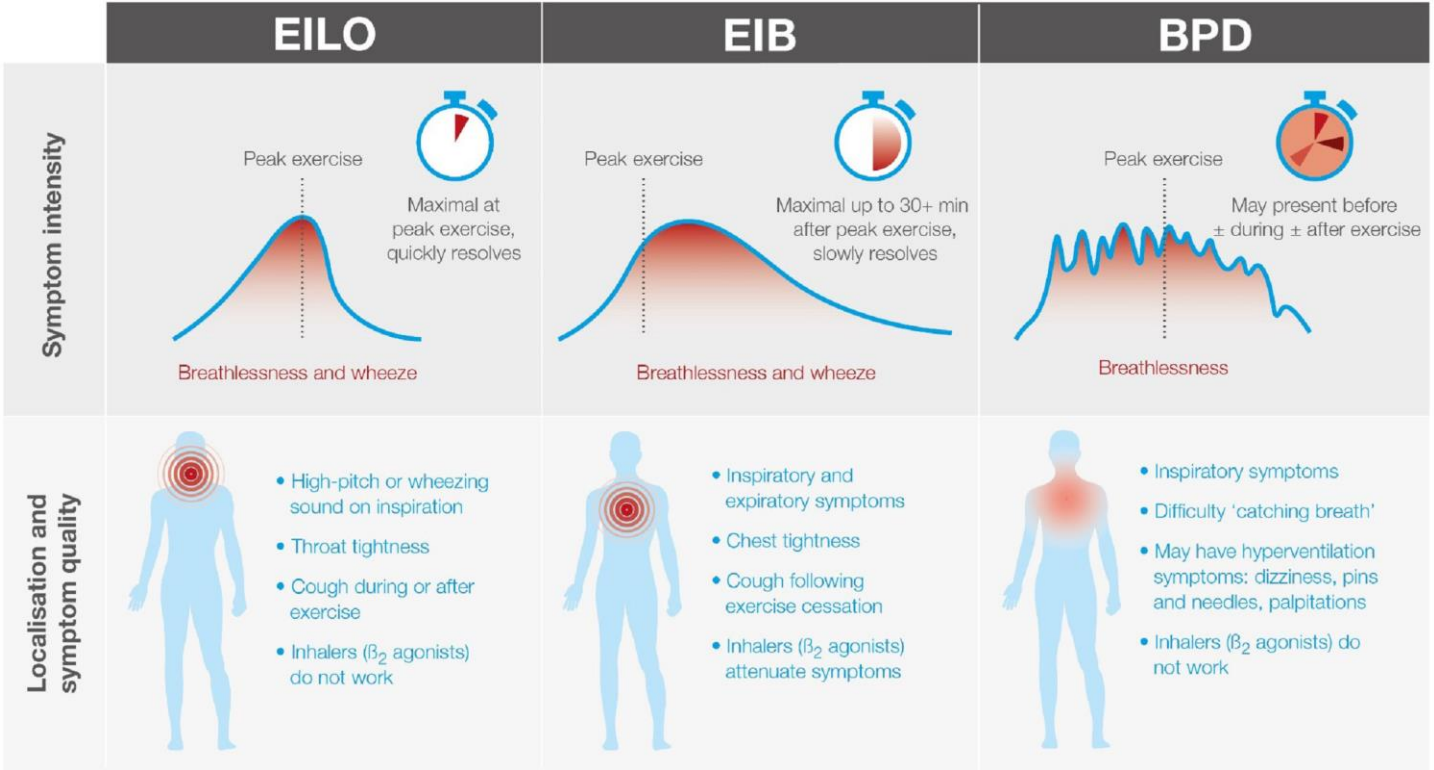
Breathing pattern disorder (BPD)



E 2 Abnormal breathing patterns in BPD.

- Abnormal biomechanical pattern of breathing = dyspnea
- Sx: difficulty taking deep breaths, unsatisfying breaths, upper chest discomfort
- Sx @peak exercise, during ADLs
- With other lung dx (COPD, asthma, long Covid), EIB, EILO, on its own

Beacon Hospital

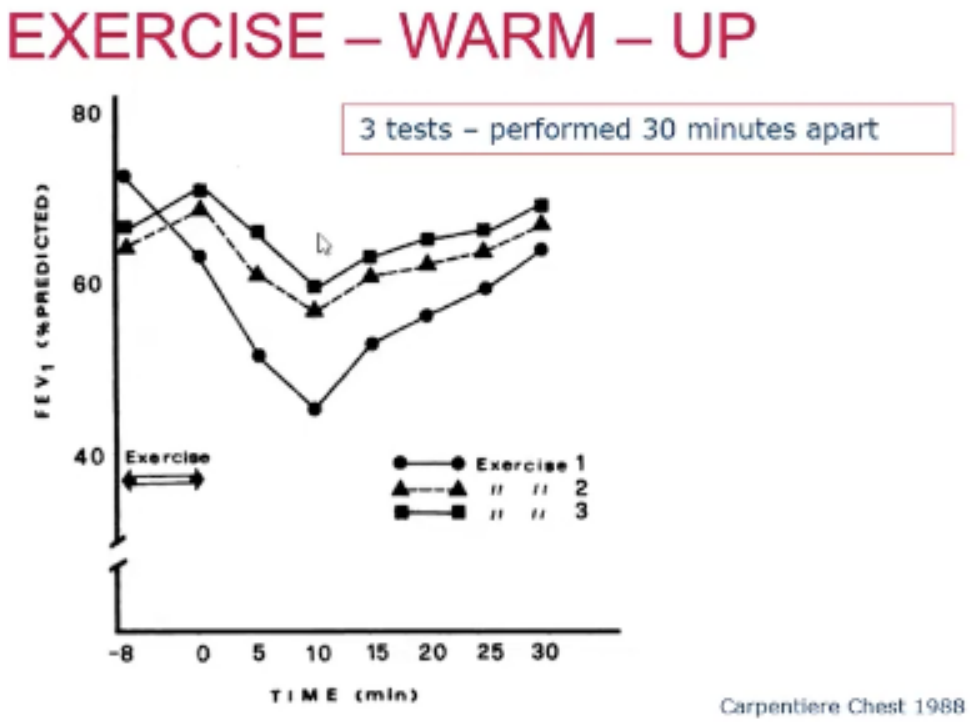


BTS Clinical Statement on Respiratory Problems in Athletes 2022 Hull et al.

Management of EIB

- Warm-up
- Reduce cold, dry air

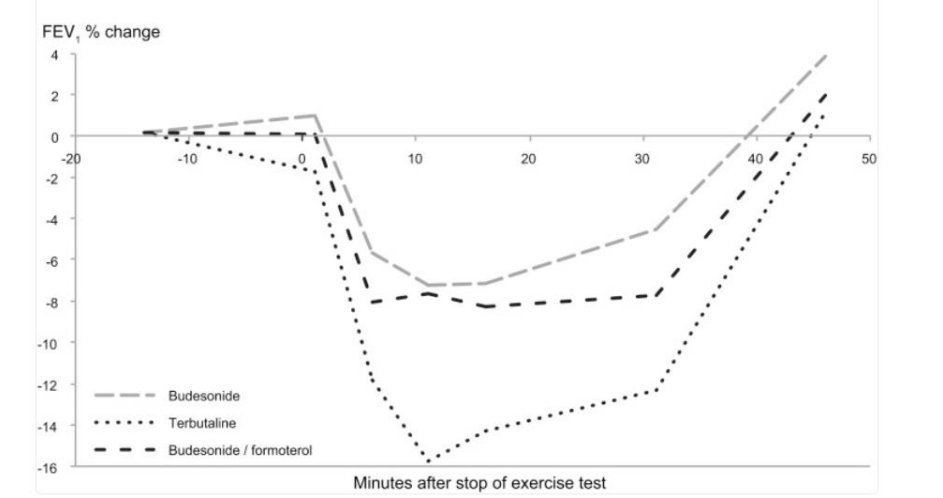
- Inhaler adherence and technique
- ICS-LABA (e.g. Symbicort/Bufomix)



Beacon Hospital

ICS-LABA for EIB

6 weeks of ICS-LABA is superior to SABA pre-exercise



Lazarinis et al Thorax 2014

30 days of ICS-LABA reduce EIB post exercise test

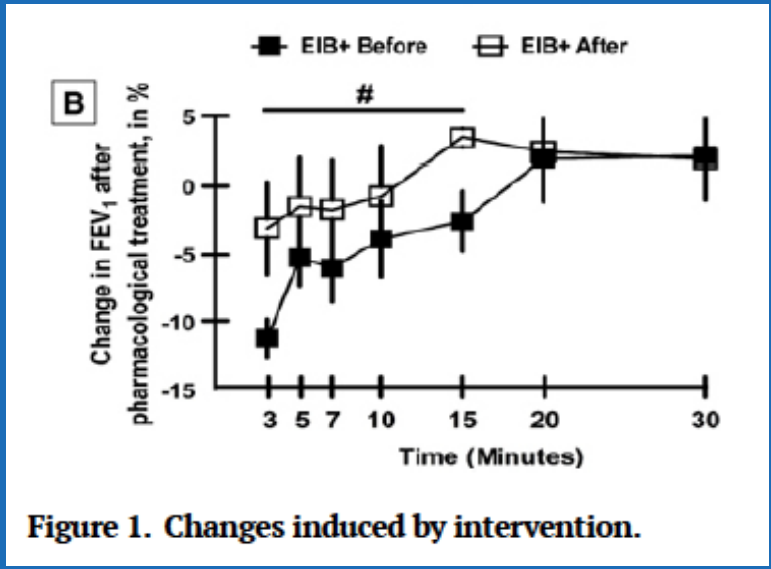


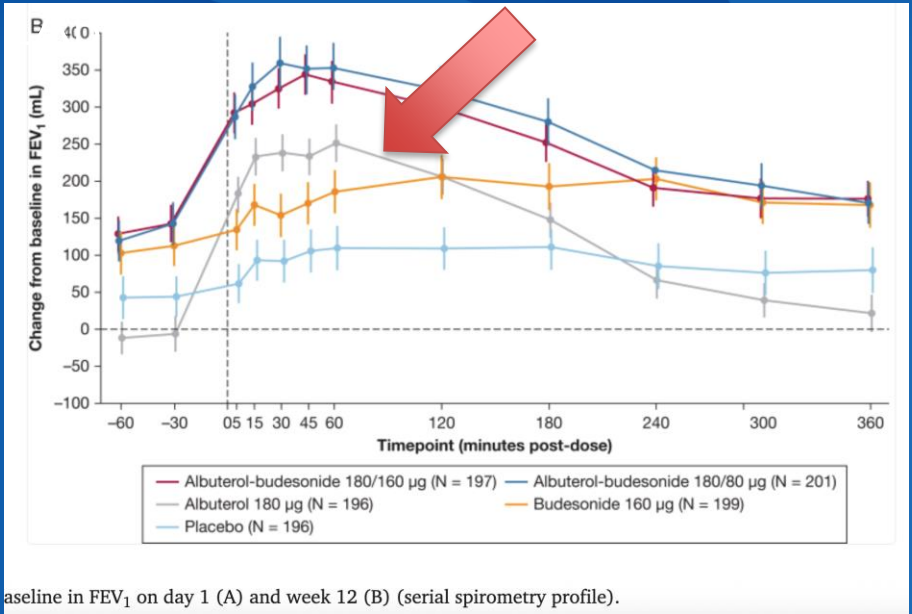
Figure 1. Changes induced by intervention.

Carvalho et al 2025 IJSPT

Beacon Hospital

Tachyphylaxis

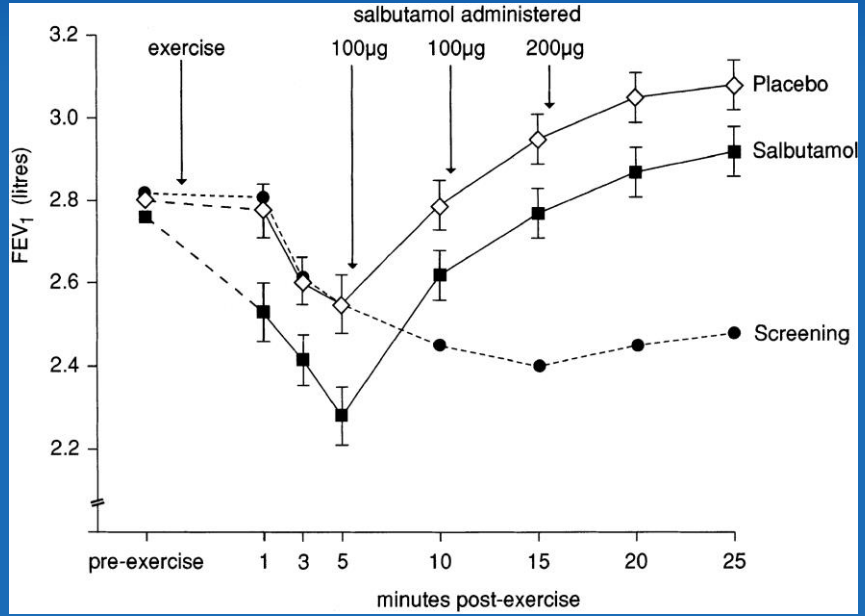
Daily SABA for 12 weeks vs ICS-



aseline in FEV_1 on day 1 (A) and week 12 (B) (serial spirometry profile).

Chipps et al, Mar 2023Chest

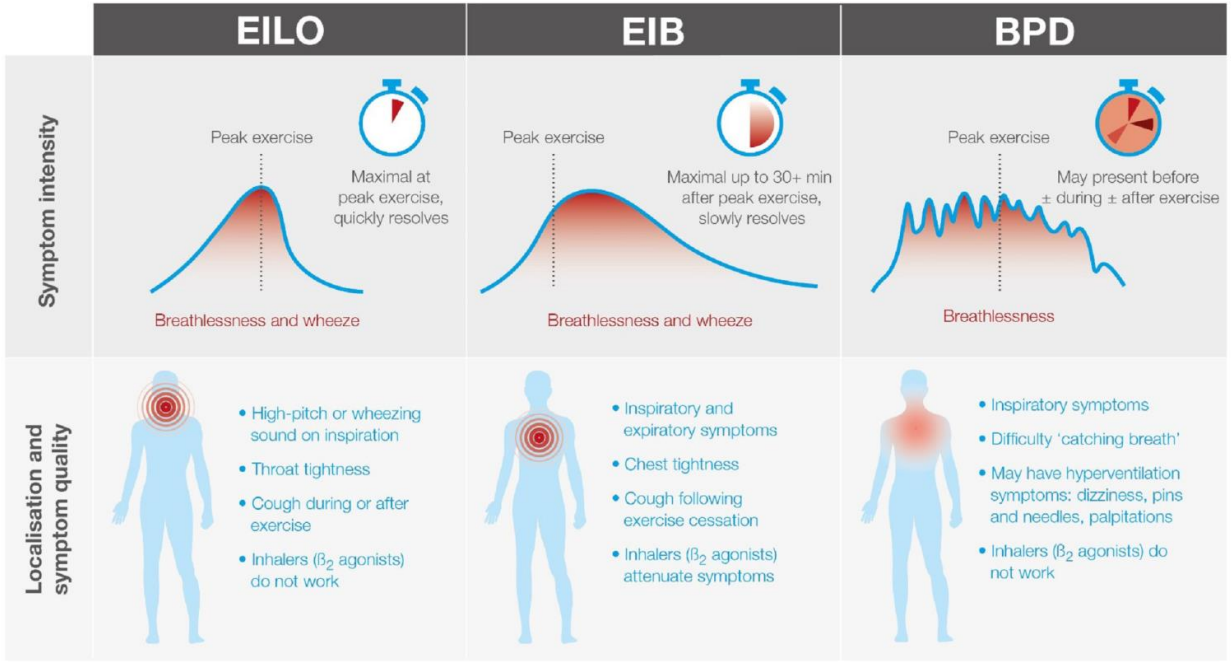
Regular SABA for 1 week



Hancoz et al 2002, AJRCCM

Beacon Hospital

Thank you



Questions:
Abhilash.Sahadevan@beaconhospital.ie

Beacon Hospital

Thank you

Beacon Hospital