



# LA RIABILITAZIONE RESPIRATORIA NEL PAZIENTE RIACUTIZZATO

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Le malattie respiratorie sono un problema di salute pubblica

Rappresentano la seconda causa di morte al livello mondiale

In futuro: aumento dell'incidenza

- Aumenta il tabagismo
- Inquinamento climatico
- Guerra

La BPCO di per se rappresenta la terza cause di morte al livello mondiale



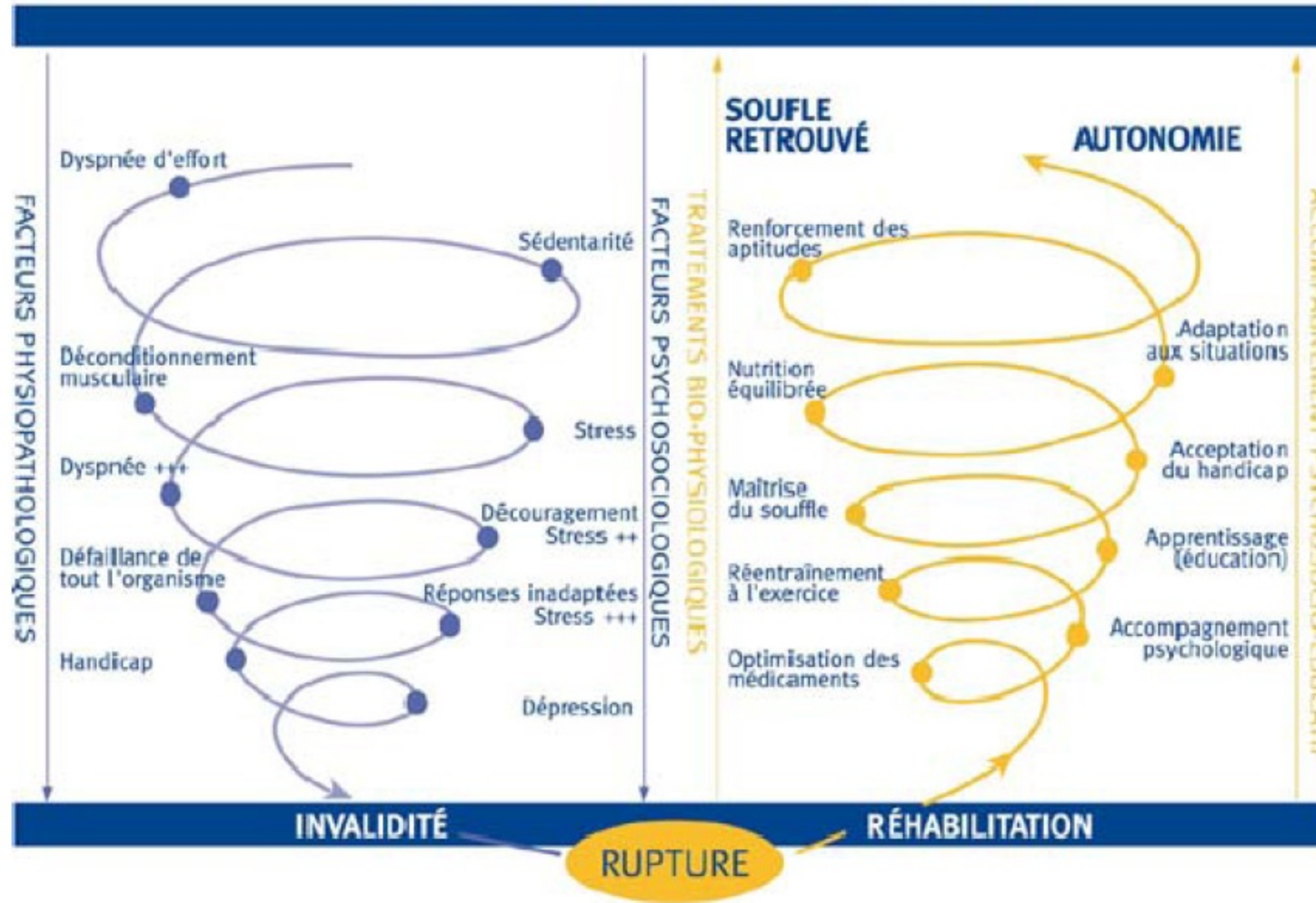
## La terapia della BPCO:

- Cessazione del fumo
- Terapia inalatoria
- Terapia sistemica
- Ossigeno terapia/ ventilazione non invasiva
- Prevenzione: vaccini, educazione sociale
- FISIOTERAPIA

De la spirale infernale...

...à la qualité de vie

## du malade respiratoire chronique



## CONCISE CLINICAL REVIEW

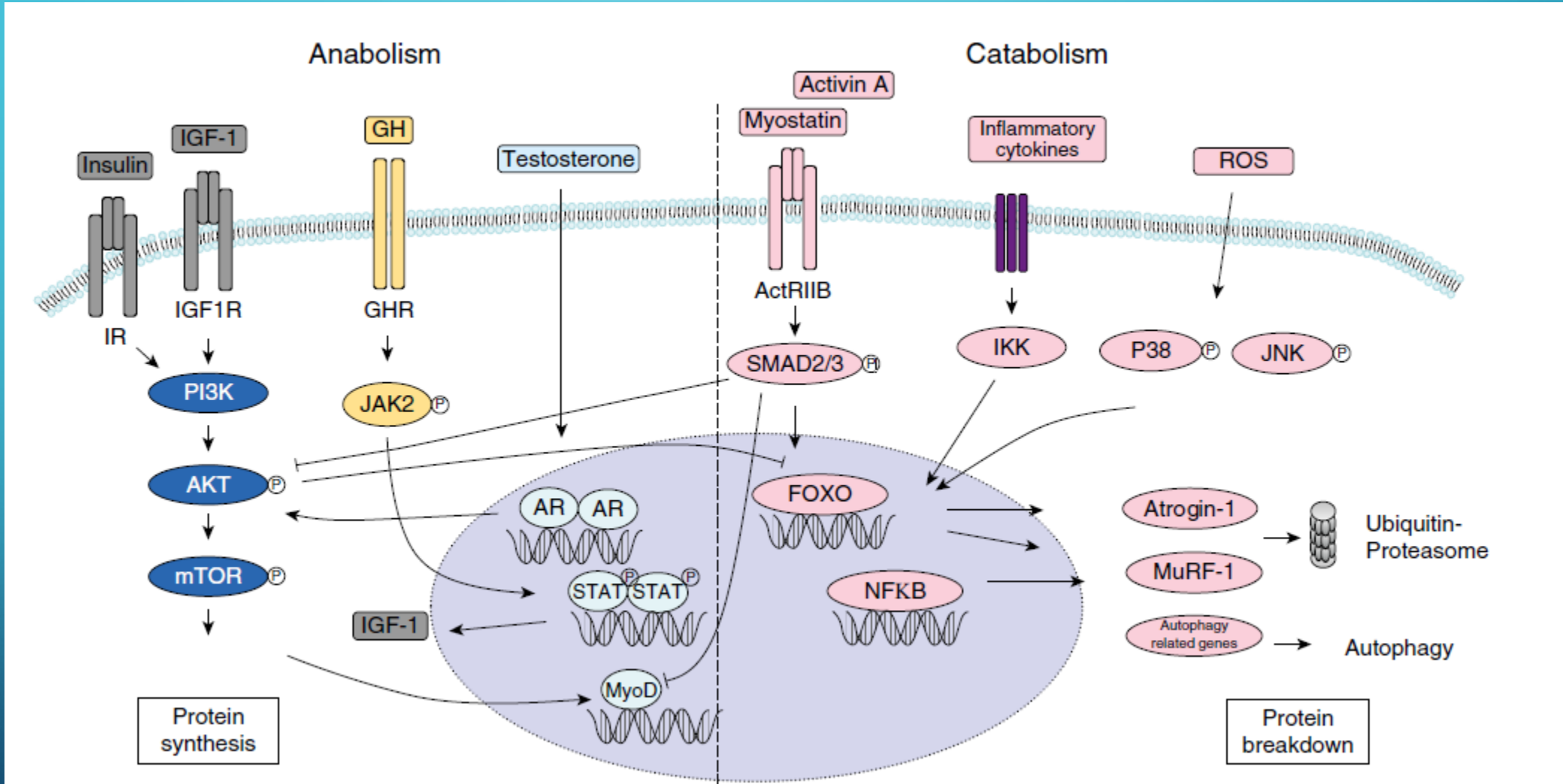


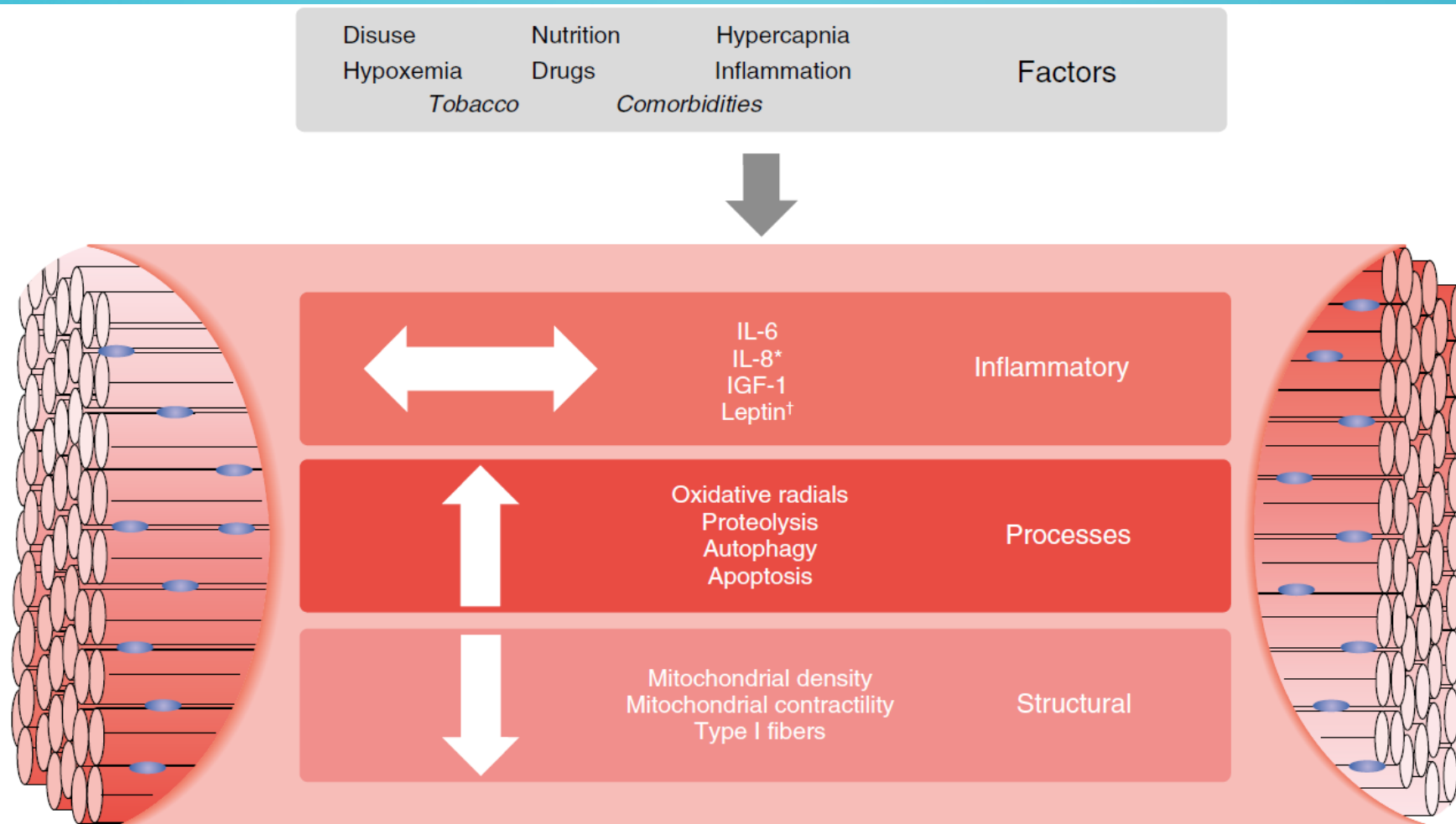
# Deterioration of Limb Muscle Function during Acute Exacerbation of Chronic Obstructive Pulmonary Disease

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La caratteristica principale della BPCO stabile/esacerbata è la debolezza muscolare.







**Figure 2.** Factors and consequences in acute and chronic obstructive pulmonary disease (COPD)-related muscle dysfunction. The multiple factors related to muscle dysfunction in chronic and acute settings. Many of these factors are similar for both acute exacerbations of COPD and chronic stable COPD, with the notable exception of tobacco use and comorbidities (18, 21, 43, 54, 109). The large white arrows denote the direction of the impact. \*Different muscle compartments show variable levels of cytokines. <sup>†</sup>Level dependent on time frame of illness. IGF-1 = insulin-like growth factor-1.



Decondizionamento più importante nelle  
persone più anziane

Dopo solo 5 giorni di ospedale il quadricipite  
diminuisce la forza muscolare e il diametro di 5%.



Perdita ponderale importante durante le  
AECOPD, in pazienti già cachettici



Therapeutic Approach	Category	Examples of Interventions	Pros/Cons
Nutritional support	High-protein diet	>1.5 g of protein (4, 38)	May be appropriate after thorough nutritional evaluation; may be nitrogen load
	Complete oral nutrition supplementation	Formulas vary; brands include ENSURE, BOOST	Potential link to reduced readmission, however, hospital formulations vary (34)
	Other nutritional supplements	Creatine (67, 68) Coenzyme Q (68) Vitamin D	Mixed or negative data on effectiveness; insufficient evaluations in hospitalized AECOPD setting
Pulmonary rehabilitation	General	Varies: resistance, cardio; includes limb-specific exercises	Shown to increased exercise capacity and feelings of independence Early initiation may not improve patient-reported outcomes (63) and may be linked to increased mortality (62)
	Upper limb	Supported: arm weight is supported, including cycle ergometry, rear deltoid row, chest press, and biceps flexion with vertical shoulder press (59) Unsupported: requires the activation of muscles that may be involved in respiration and/or in the support of the shoulder girdle during ADLs (e.g., lifting free weights) (59)	Improvement in both performance and endurance but not always dyspnea (59, 61) Potential risks of upper limb training are dynamic hyperinflation, a phenomenon usually seen at >50% of the maximum load obtained (126)
	Lower limb	Exercises for lower limb include heel raises, knee extension with heel touching floor, hip flexion, knee extension with dorsal flexion of ankle (128)	Can improve quadriceps mass and strength, which are linked to mortality outcomes (61, 127)
Neuromuscular electrical stimulation	NMES NMES and PR	NMES only NMES PR	Generally, has been shown to be safe but higher mortality in intervention group in Greening and colleagues study (62)

*Definition of abbreviations:* ADLs = activities of daily living; AECOPD = acute exacerbation of chronic obstructive pulmonary disease; NMES = neuromuscular electrical stimulation; PR = pulmonary rehabilitation.

# An early rehabilitation intervention to enhance recovery during hospital admission for an exacerbation of chronic respiratory disease: randomised controlled trial



OPEN ACCESS

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389 patients aged between 45 and 93 who within 48 hours of admission to hospital with an exacerbation of chronic respiratory disease were randomised to an early rehabilitation intervention (n=196) or to usual care (n=193).

Esercizi aerobici: 85% del Vo2

Esercizi di forza: 3 set di 8 ripetizioni ogni gruppo muscolare

Elettrostimolazione: 30 minuti/di

### What is already known on this topic

Admissions to hospital for exacerbations of chronic respiratory disease are associated with high readmission rates

Post-exacerbation pulmonary rehabilitation is recommended in current guidelines but may miss the early decline seen in physical performance associated with hospital stay, and uptake of treatment is poor

We hypothesised that an early rehabilitation intervention at the time of admission and immediately afterwards would prevent this physical decline and reduce the rate of hospital admission

### What this study adds

The acute admission is not the time to enrol patients in a rehabilitation programme as the risk of readmission was not reduced and recovery of physical function was not enhanced during 12 months' follow-up

Mortality at 12 months was higher in the intervention group

Rehabilitation at this time had no additional benefit to the rate of hospital admission or physical performance over standard physiotherapy and might cause harm

## **Conclusioni:**

- La riabilitazione precoce per AECOPD non ha ridotto il rischio di riammissione e non ha migliorato la forza muscolare dopo un anno
- La mortalità è più alta nel gruppo con l'intervento
- I risultati suggeriscono che un programma riabilitativo intenso non deve essere iniziato durante la fase iniziale della AECOPD

The background is a blue gradient with white circuit-like lines in the corners. The lines consist of straight segments and small circles, resembling a network or data flow diagram.

**Allora cosa fare?**

## ***Componenti del programma riabilitativo: mobilizzazione***



**Componenti del programma riabilitativo:  
manovre respiratorie**





## *Ossigenoterapia riabilitativa*



***Componenti del programma riabilitativo:  
adattamento a ventiloterapia***



***Componenti del programma riabilitativo:  
riadattamento all'autonomia***





← Medicina Camere 318-336

Medicina Camere 337-342 →







**Grazie**