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Simposio Fondo dott. Mario Gasparini Casari

RICONOSCERE E MISURARE LA FRAGILITA' NELL'ANZIANO



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VMD: strumenti di 2 - 3[^] generazione

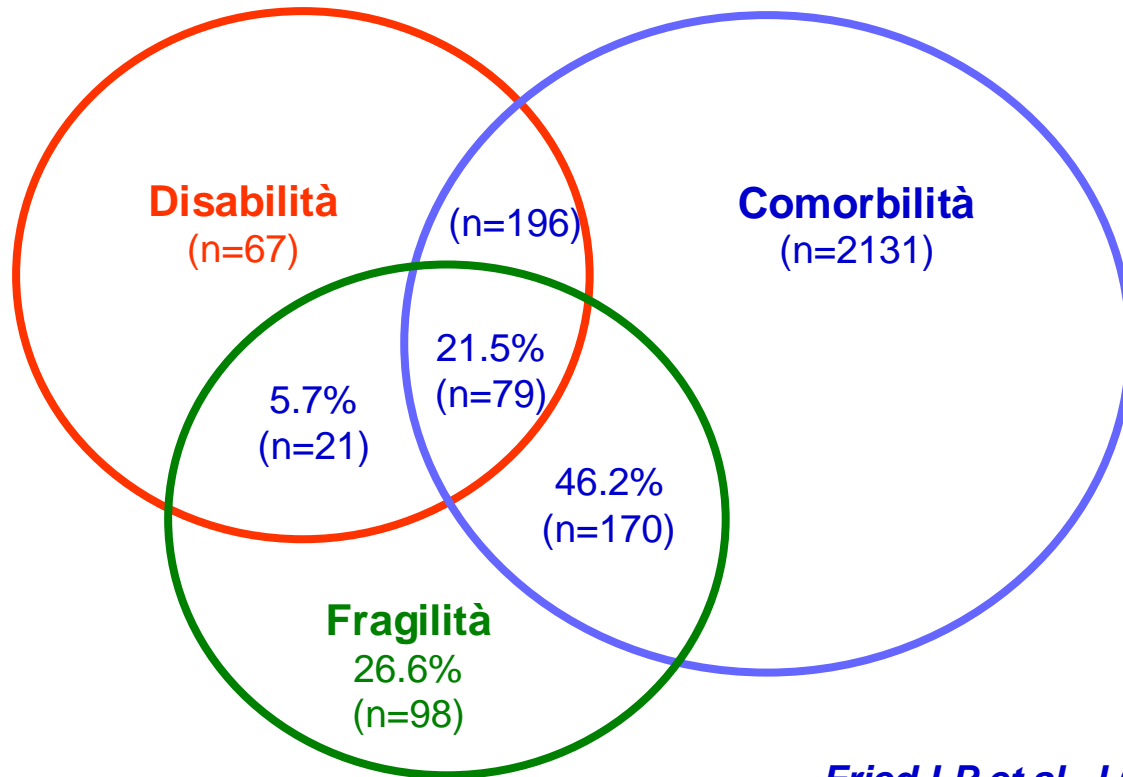
- **Phenotypic Frailty Index - PFI –**
- **Deficit Index - DI –**
- **FIM**
- **MPI**
- **VAOR nei diversi setting assistenziali-**

Phenotypic Frailty Index - PFI -

Three or more of the following criteria were present:

- unintentional weight loss (10 lbs in past year)
- self-reported exhaustion
- weakness (grip strength)
- slow walking speed
- low physical activity
- Cognitive impairment

“Fragilità” secondo “Phenotypic Frailty Index”



Fried LP et al, J Gerontol 2004

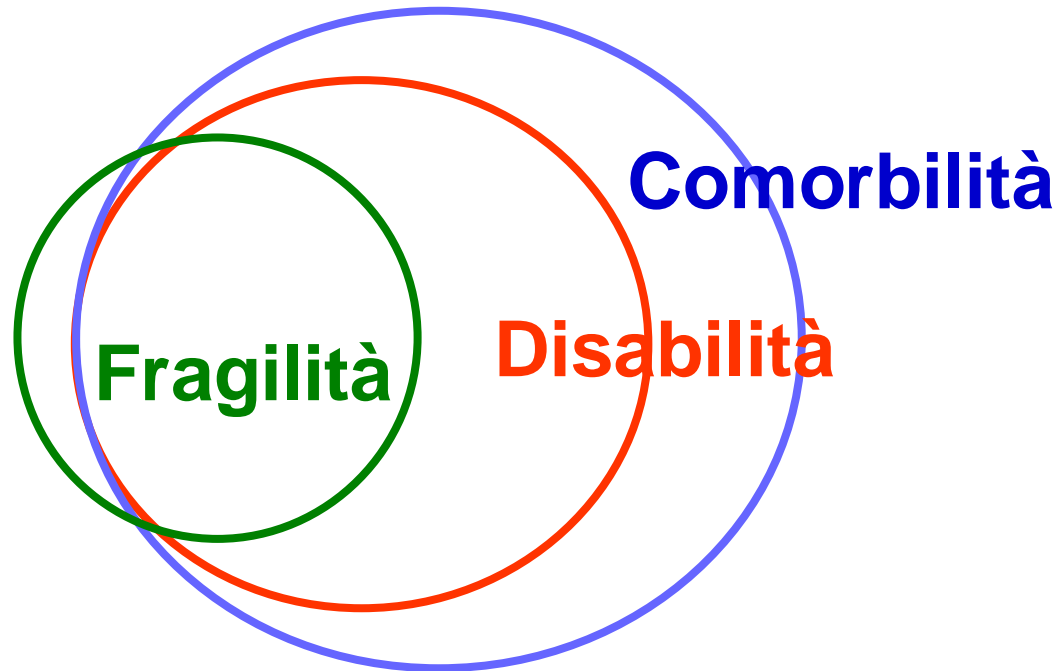
The CSHA Clinical Frailty Scale

1. **Very fit** — robust, active, energetic, well motivated and fit; these people commonly exercise regularly and are in the most fit group for their age
2. **Well** — without active disease, but less fit than people in category 1
3. **Well, with treated comorbid disease** — disease symptoms are well controlled compared with those in category 4
4. **Apparently vulnerable** — although not frankly dependent, these people commonly complain of being “slowed up” or have disease symptoms
5. **Mildly frail** — with limited dependence on others for instrumental activities of daily living
6. **Moderately frail** — help is needed with both instrumental and non-instrumental activities of daily living
7. **Severely frail** — completely dependent on others for the activities of daily living, or terminally ill

CSHA = Canadian Study of Health and Aging.

Rockwood K et al, CMAJ 2005

“Fragilità” secondo “Deficit Index”



Fase “pre-clinica”

Fragilità in assenza di comorbidità e disabilità

Fried LP et al, J Gerontol 2004

Fase “post-clinica”

Fragilità in presenza di di comorbidità e disabilità

Rockwood K et al, J Gerontol 2004

Cumulative Deficits Better Characterize Susceptibility to Death in Elderly People than Phenotypic Frailty: Lessons from the Cardiovascular Health Study

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OBJECTIVES: To compare how well frailty measures based on a phenotypic frailty approach proposed in the Cardiovascular Health Study (CHS) and a cumulative deficits approach predict mortality.

DESIGN: Cohort study.

SETTING: The main cohort of the CHS.

PARTICIPANTS: Four thousand seven hundred twenty-one individuals.

MEASUREMENTS: A phenotypic frailty index (PFI) was defined in the same way as proposed in the CHS: assessing weight loss, exhaustion, low physical activity, slowness, and poor grip strength. A cumulative deficit index (DI) was defined based on 48 elderly deficits (signs, symptoms, impairments, diseases) included in the index, with equal weights.

RESULTS: Of the 1,073 frailest individuals with the lowest survival, the PFI, categorized as proposed in the CHS into robust, prefrail, and frail categories, underestimated the risk of death for 720 persons, whereas the DI categorized into the same three frailty categories underestimated the mortality risk for 134 persons. The higher power of the DI for discriminating frail individuals in their susceptibility to death also followed from comparison of quasi-instantaneous values of both indices. The three-level DI identified 219 individuals as frail of 361 individuals identified as frail according to the three-level PFI.

CONCLUSION: The DI can more precisely evaluate chances of death because it assesses a broader spectrum of disorders than the PFI. Both indices appear to be frailty related. Integration of both approaches is highly promising for increasing the precision of discrimination of the risk of death and especially for identification of the most vulnerable elderly people. *J Am Geriatr Soc* 56:898–903, 2008.

Key words: frailty; mortality; aging and well-being; health; survival

Frailty appears to be an important aspect of human senescence. Exploring the frailty phenomenon might provide further insights into aging-associated processes and survival.^{1–6} Frailty is typically viewed as a physiological state that results from general decline of an organism's reserves and deregulation of multiple physiological systems. Frail individuals are believed to have greater nonspecific vulnerability and are more susceptible to various adverse health outcomes, including death, disability, and hospitalization.^{7–12} The operational definition of frailty, nevertheless, remains controversial.^{13–16} A variety of approaches have been suggested to identify frail individuals.¹⁷ Few of them have been directly tested.^{18–21}

One wide-spread approach¹² is to distinguish *phenotypic frailty* (PF) as a clinical syndrome (a set of signs and symptoms that tend to occur together, thus characterizing a specific medical condition). The PF definition is based on selected indicators of physical frailty (unintentional weight loss, exhaustion, weak grip strength, slow walking, and low physical activity). It is believed that physiological aging (basic cause) and a disease (serving as a risk factor) lead to PF, which results in inability to manage everyday stresses of life and thus in greater vulnerability to adverse health outcomes.^{12,14,16}

Another wide-spread approach^{22,23} is based on the

Prevalence of components of “Phenotypic Frailty Index - PFI -” in the main cohort (n=54.721) of the Cardiovascular Health Study

Frequency of Phenotypic Frailty Components	% (% of Missing Values)
Weight loss	4.5 (6.5)
Exhaustion	16.1 (0.2)
Low physical activity	19.7 (0.3)
Slow walk	28.8 (1.3)
Poor grip strength	21.7 (7.2)
Number of positive criteria for phenotypic frailty	
0	42.5
1	33.4
2	16.5
3	6.1
4	1.4
5	0.1

Cumulative Deficits Index (DI) and Phenotypic Frailty Index (PFI) categorization

The PFI defined three frailty phenotypes:

- robust (no positive criteria for frailty)
- prefrail (1 or 2 positive criteria), and
- frail (3 positive criteria),

The DI categorization under these conditions was:

- robust ($0 \leq \text{and} \leq 0.2$),
- prefrail ($0.2 \leq \text{and} \leq 0.35$)
- frail (≥ 0.35).

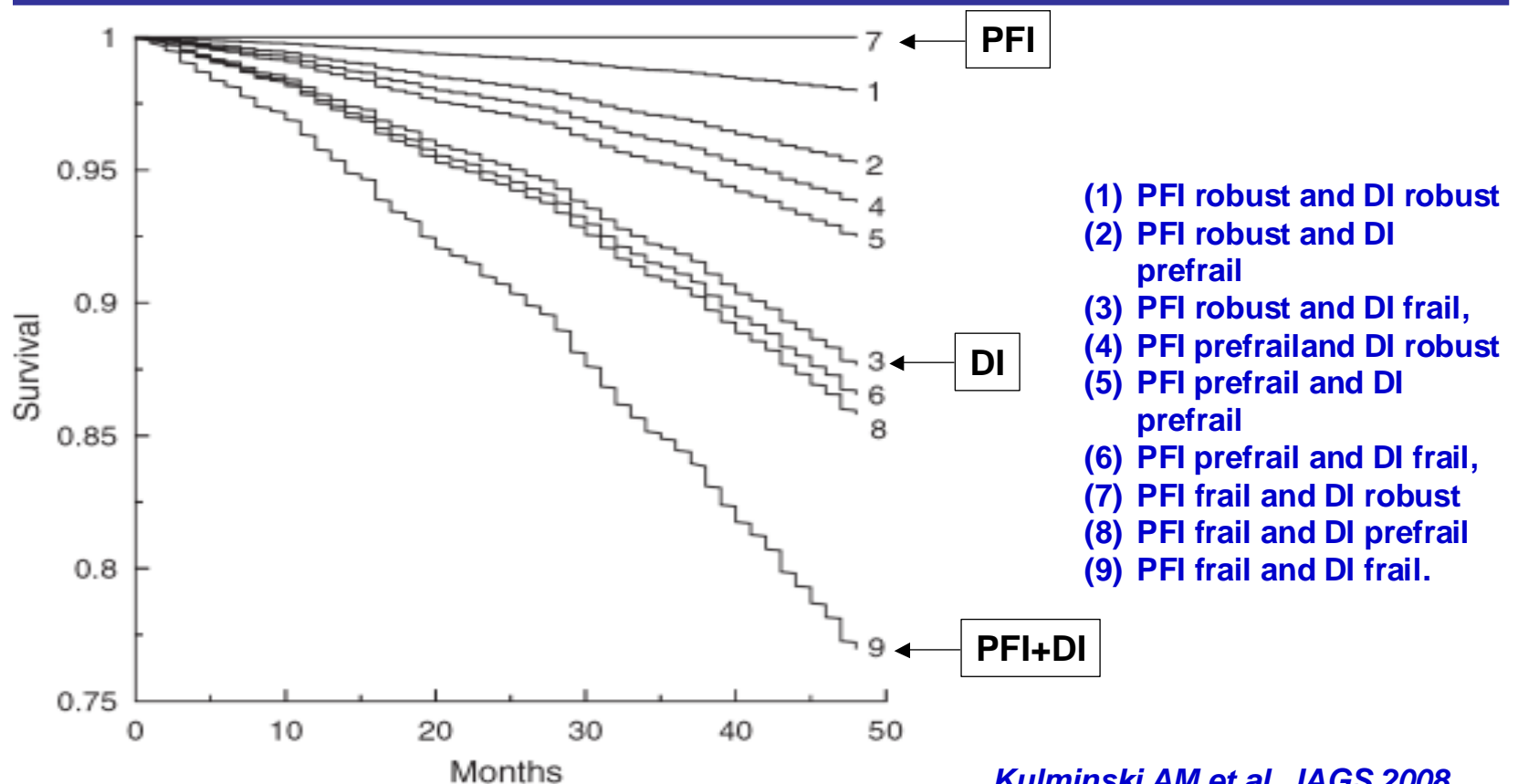
Number of individuals dying and surviving within the 4-year follow- Up period defined according to the Deficit Index and Phenotypic Frailty Index

Phenotypic Frailty Categories	Factor	Deficit Index Categories		
		Robust	Prefrail	Frail
				n
Robust	Subgroup	1	2	3
	Alive	838	961	117
	Dead	21	53	18
	Total	859	1,014	135
Prefrail	Subgroup	4	5	6
	Alive	427	1,178	506
	Dead	37	125	79
	Total	464	1,303	585
Frail	Subgroup	7	8	9
	Alive	8	107	158
	Dead	0	27	61
	Total	8	134	219

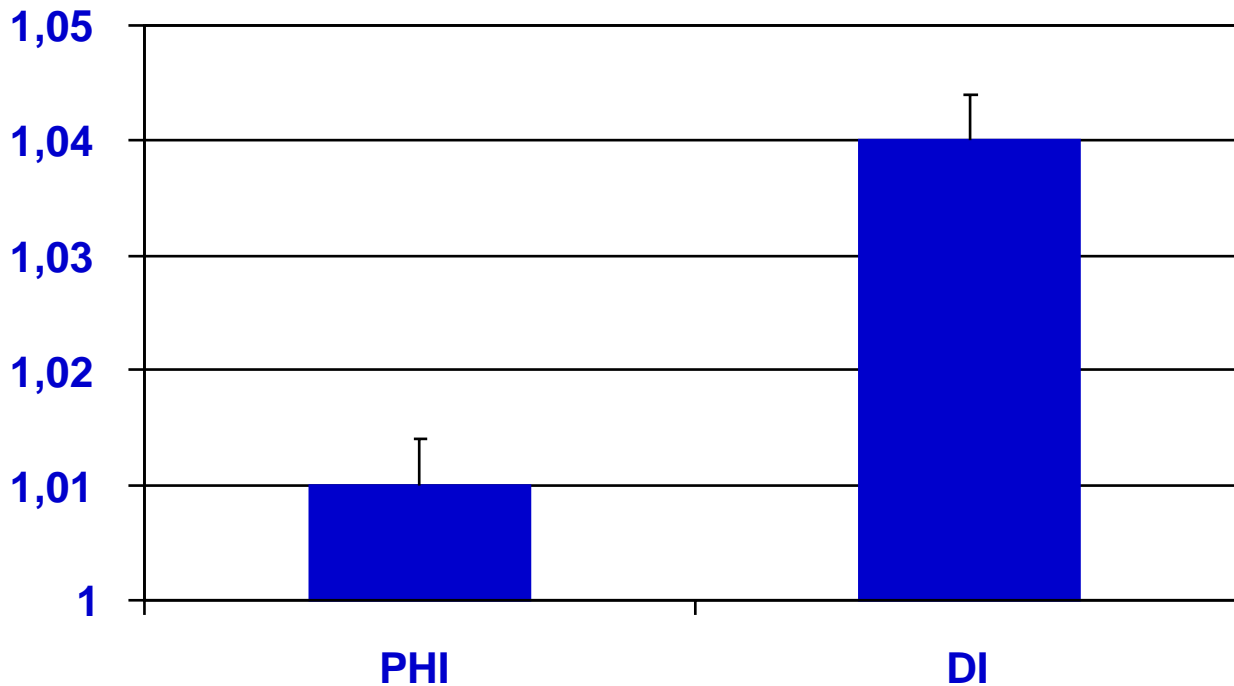
-720 with PFI

-134 with DI

Cox regression for each of the nine selected subgroups defined on the basis of the phenotypic frailty index (PFI) and deficit index (DI) into three categories

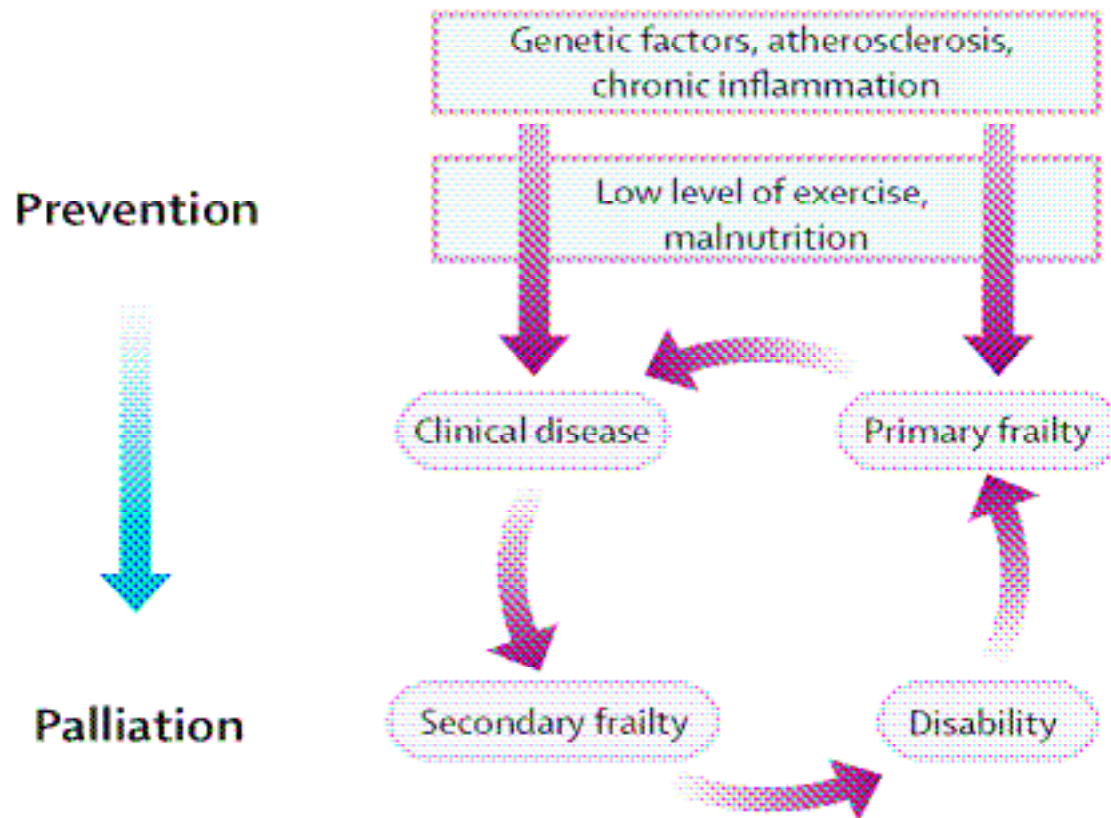


Comparative analysis shows that the “Deficit Index” predicts death significantly better than the “Phenotypic Frailty Index”



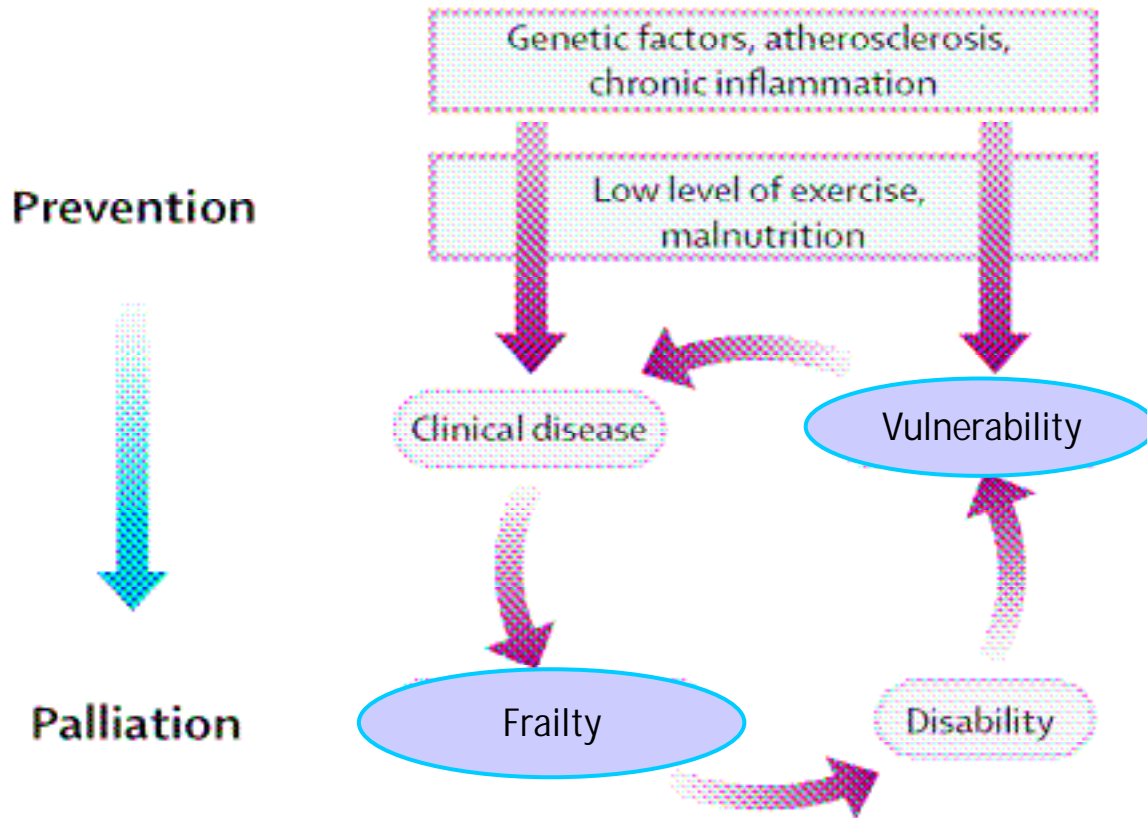
Kulminski AM et al, JAGS 2008

Pathways to frailty



Strandberg TE & Pitkälä KH, Lancet 2007

Pathways to frailty



Strandberg TE & Pitkälä KH, Lancet 2007