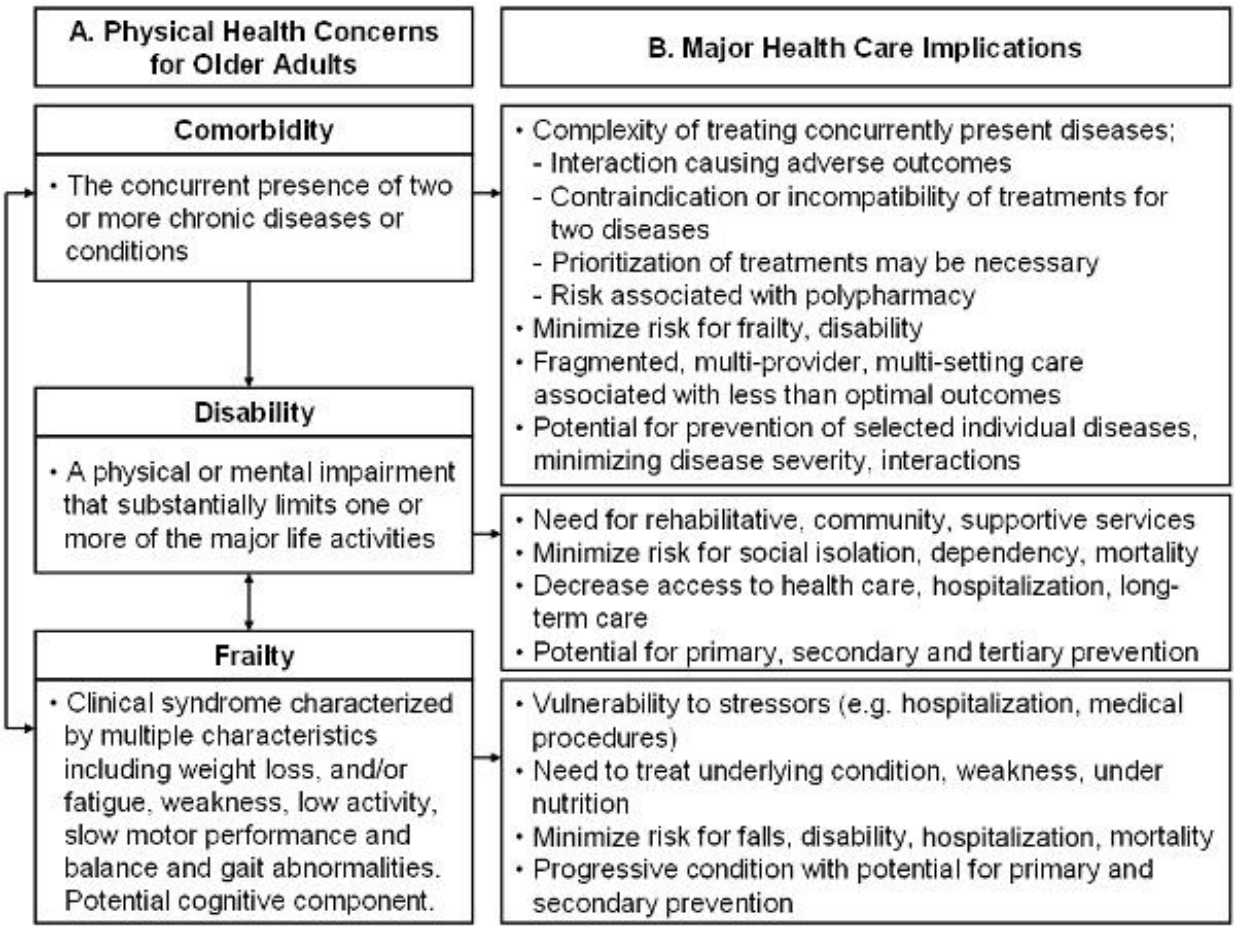
The link between frailty, disability and polypathology

Figure 1: Definitions of frailty, comorbidities (polypathology) and disability, and their major healthcare implications in the general population.[1]



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Frailty

Checklist of frailty criteria in the general population

Frailty can be defined as a clinical syndrome in which more than three of the following criteria are present:[2–4]

- physical shrinking (unintentional weight loss and loss of muscle mass)
- self-reported exhaustion
- weakness
- slow walking speed
- low physical activity

Having one or two criteria can be defined as intermediate or pre-frail.[2]

Table 1: Frailty assessment in the Cardiovascular Health Study (CHS)[2]

Frailty criteria (≥3 positive = frailty)	Assessment	Score positive cut-off	
Slowness	Timed 15-foot walk (stratified by gender and height)	**Men:**	
		≥7 seconds if height ≤173cm	≥6 seconds if height >173cm
		Women:	
		≥7 seconds if height ≤159cm	≥6 seconds if height >159cm
Weakness	Grip strength (stratified by gender and BMI)	**Men:**	
		≤29kg if BMI ≤24	≤30kg if BMI 24.1–28
		≤32kg if BMI >28	
		Women:	
		≤17kg if BMI ≤23	≤17.3kg if BMI 23.1–26
		≤18kg if BMI 26.1–29	≤21kg if BMI >29
Poor endurance / exhaustion	"Everything I do is an effort"	Answer "yes" to 3–4 days/week or more	
	"I cannot get going"	Answer "yes" to 3–4 days/week or more	
Low physical activity	Kcal of energy expended in the last week on leisure time activity (calculated)	Men <383 kcal; women <270 kcal	
Shrinking (weight loss and sarcopenia)	Self-reported unintentional weight loss	>10 US pounds in previous year	
	Measured unintentional weight loss during follow up	>5% of body weight in previous year	

BMI = body mass index

Table 2: Frailty assessment in the Women's Health Initiative (WHI) Observational Study (OS)[4]

Frailty criteria (≥3 positive = frailty)	Assessment	Score positive for frailty?
Muscle weakness / slow walking speed (score as 2 points)	Rand-36 Physical Function scale	Score <75
Exhaustion	Rand-36 Vitality scale	Score <55
Low physical activity	Kcal of energy expended in the last week on leisure time activity (calculated)	Lowest quartile
Unintentional weight loss	Measured weight loss	>5% of body weight in the past 2 years
	"In the past 2 years, did you lose 5 or more pounds (US) not on purpose at any time"	AND answer "yes"

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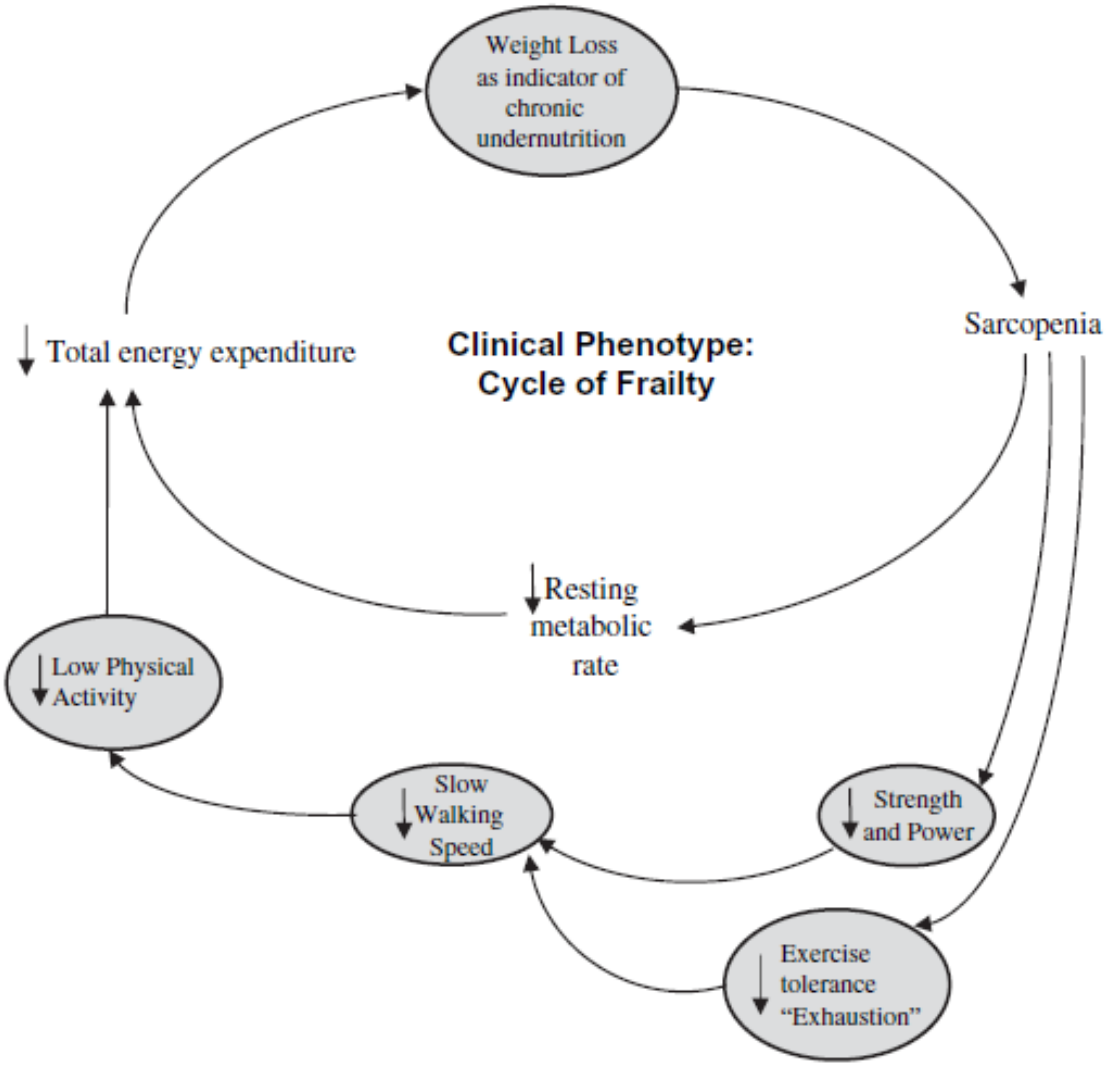
Figure 2: The frailty cycle.[3]

Frailty can be viewed as a cycle.[2,3]



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Checklist of risk factors associated with frailty in the general population

Risk factors associated with frailty include the following:[2,5–6]

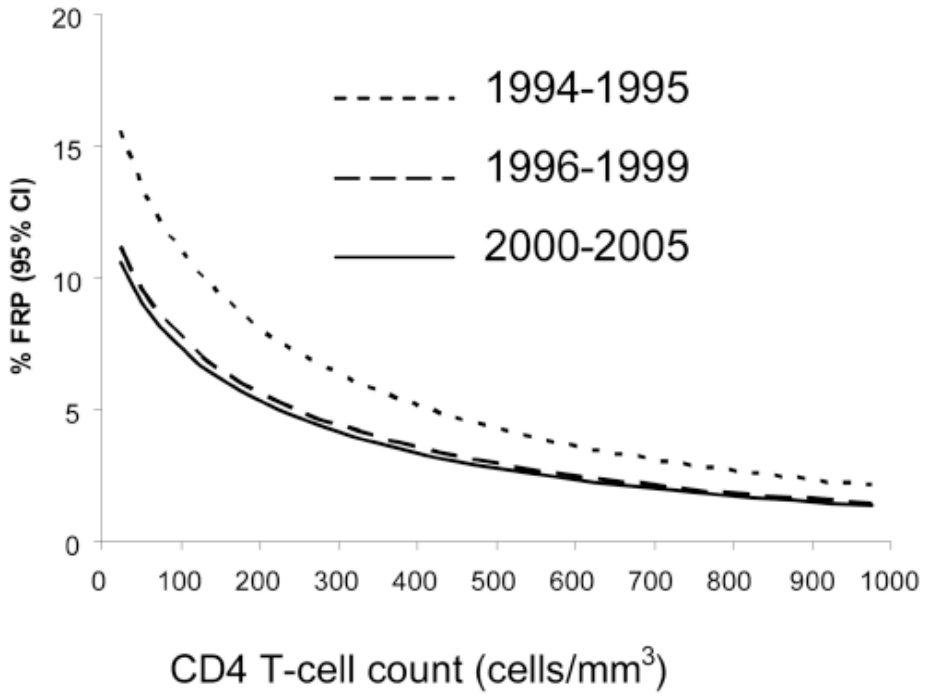
- older age
- higher rates of co-morbid chronic diseases and disability
- sarcopenia
- use of antidepressants
- previous opportunistic illness
- clinical AIDS
- poorer health
- unemployment

- lower education and income.

The frailty-related phenotype

- HIV infection is strongly associated with the prevalence of a frailty-related phenotype.[7]
  - Prevalence of the frailty-related phenotype for 55-year-old men infected with HIV for ≤4 years is similar to that of uninfected men aged ≥65 years.[7]
- A lower CD4 T-cell count is highly, and significantly, predictive of onset of the frailty-related phenotype in HIV-positive men.[5]
- The prevalence of the frailty-related phenotype declined by approximately 50% after the introduction of highly active antiretroviral therapy (HAART).[5]

Figure 3: Relationship between CD4 T-cell count and prevalence of the frailty-related phenotype over time.[5]



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