



53° Congresso Nazionale
Società Italiana di Gerontologia e Geriatria
“L'Italia? Non è un paese per vecchi...”

7° Corso di Riabilitazione
“Riabilitazione Geriatrica: un approccio globale”
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Il significato della riabilitazione

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A SSESSING THE EFFECTS of rehabilitation requires separating the added benefit of that enterprise from what prior treatment (eg, joint replacement) has accomplished (eg, improved walking and pain). Because rehabilitation occurs during recuperation, this distinction is not easily made. Two separate questions can be posed: (1) Does rehabilitation help? and (2) Does the specific nature of the rehabilitation enterprise make a difference in the patient's clinical trajectory? Moreover, the ultimate outcomes are heavily influenced by other factors, such as socioeconomic status and informal care. Put another way, rehabilitation accounts for only a modest proportion of the variance around a given outcome. Thus, assessing the effectiveness of rehabilitation requires specific efforts to partition the effects of rehabilitation separate from the other factors that can influence outcomes. Comparing alternative rehabilitative modes or techniques essentially involves efforts to explain variation within the context of factors that include patient characteristics and environmental supports.¹ Such a practice tends to direct attention to short-term effects, such as the change from admission to a rehabilitation unit to discharge, whereas the socially important question is how does rehabilitation change the patient's clinical trajectory over the long haul.

(Kane RL. Arch
Phys Med Rehabil
2007;88:1500-
1504)

We strongly agree with Kane's concerns and believe that, at least in Italy, it is time for rehabilitation to broaden its competences to include the somatic needs of the patients rather than to deal exclusively with disability and impairments.

(Bellelli et al, Arch Phys Med Rehabil 2008;89(4):794)

Le domande di Kane sulla riabilitazione devono tener conto delle condizioni di salute dell'anziano. Infatti modulano la possibilità di attivare i programmi di lavoro e di raggiungere gli obiettivi.

Lo stretto rapporto tra stato funzionale e salute.

Relationship Between Functional Loss Before Hospital Admission and Mortality in Elderly Persons With Medical Illness

Renzo Rozzini,¹ Tony Sabatini,¹ Angela Cassinadri,¹ Stefano Boffelli,¹
Marco Ferri,¹ Piera Barbisoni,¹ Giovanni B. Frisoni,² and Marco Trabucchi¹

Journal of Gerontology: MEDICAL SCIENCES
2005, Vol. 60A, No. 9, 1180–1183

Crude and Adjusted Associations of Clinical Variables and 6-Month Mortality in 950 Hospitalized Elderly Patients

Variable	N/Events	Unadjusted RR (95% CI)	Adjusted RR (95% CI)
Sex (male)	335/61	1.6 (1.0–2.9)	1.5 (0.9–2.6)
Age (>80)	470/78	1.5 (1.1–2.2)	1.0 (0.9–1.1)
Change in functional status			
No change	670/58	1.0 (reference)	1.0 (reference)
Minor change (5–25)	130/24	1.8 (1.0–4.0)	1.3 (0.6–3.0)
Major change (30+)	148/48	6.2 (3.5–11.5)	2.8 (1.3–5.7)
Mini-Mental State			
Examination (<18)	167/41	3.6 (2.0–6.4)	1.9 (1.1–3.8)
Geriatric Depression Scale (>4)	547/71	1.4 (0.9–2.1)	NS
Acute Physiology Score (>4)	185/57	3.6 (2.1–6.4)	2.3 (1.3–4.3)
Serum albumin (<3.5 g/dl)	177/52	4.5 (2.6–8.0)	2.3 (1.3–4.6)
Charlson Index (8+)	199/75	2.5 (1.3–4.8)	NS
Anemia	97/28	3.4 (1.7–6.6)	2.2 (1.0–5.4)
Cancer	170/66	2.7 (1.8–5.5)	NS
Heart failure (ischemic/organic)	123/24	1.6 (0.8–3.9)	NS
Heart failure (extracardiac)	40/11	2.5 (0.9–7.0)	NS
Pulmonary disease	364/69	1.7 (1.0–3.2)	NS
Chronic renal failure	155/31	2.7 (0.9–8.9)	NS

Notes: Unadjusted: computed in bivariate Cox regression models. Adjusted: computed in a multivariate model where all the variables of the unadjusted analysis were tested for independent association in a stepwise Cox model.

NS = variables failing to reach the threshold for inclusion (see Methods); RR = relative risk; CI = confidence interval.

(Rozzini R et al, J Gerontol: Med Sci, 60A: 1180-1183, 2005)

Characteristics of 1119 acutely ill elderly patients and their mortality rate according to trajectories of function during hospitalization.

	Total	Group a (Moderate loss and not regain in function)	Group b (Moderate loss and not regain in function)	Group c (Severe loss and regain in function)	Group d (Severe loss and not regain in function)
	Mean ± standard deviation				
Patients	n=1119	n=244	n=193	n=497	n=185
Age, mean ± SD	80.6(± 7.8)	80.2 (± 7.6)	82.2 (± 7.5)	79.8 (± 7.8)	81.3 (± 8.0)
Gender (male), n (%)	450 (40.2 %)	103 (42 %)	62 (32 %)	213 (43 %)	72 (40 %)
MMSE (0-30) *	21.1 (± 8.1)	22.4 (± 6.7)	19.2 (± 9.1)	22.4 (± 7.1)	17.1 (± 9.9)
Barthel Index (0-100) (before admission)	78.6 (± 22.4)	74.6 (± 26.0)	75.1 (± 25.3)	81.5 (± 20.0)	80.0 (± 20.3)
Barthel Index (0-100) (at admission)	35.5 (± 29.3)	53.8 (± 26.2)	55.3 (± 26.5)	23.6 (± 24.2)	22.5 (± 24.2)
Barthel Index (0-100) (at discharge)	57.8 (± 31.0)	72.0 (± 25.4)	52.4 (± 28.1)	66.8 (± 25.3)	20.8 (± 24.2)
Main Diagnosis n (%)					
Heart Failure, Arrhythmias	325 (29.0)	76 (31.1)	48 (24.9)	150 (30.2)	51 (27.6)
Respiratory Failure (Pneumonia, COPD)	461 (41.2)	88 (36.1)	64 (33.2)	244 (49.1)	65 (35.0)
Gastroenteric	120 (10.7)	32 (13.1)	23 (12.0)	41 (8.2)	24 (13.0)

(Sleiman et al, 2008)

Continua...

Characteristics of 1119 acutely ill elderly patients and their mortality rate according to trajectories of function during hospitalization.

Cancer related diseases	165 (14.7)	41 (16.8)	47 (24.4)	48 (9.7)	29 (16.0)
Others	48 (4.3)	7 (2.9)	11 (5.7)	14 (2.8)	16 (8.64)
Charlson Index (0-33)	<u>2.9 (± 2.3)</u>	<u>2.8 (± 2.2)</u>	<u>3.5 (± 2.9)</u>	<u>2.5 (± 1.9)</u>	<u>3.3 (± 2.3)</u>
APACHE II [†]	12.5 (± 5.8)	11.2 (± 4.8)	10.3 (± 5.3)	13.6 (± 5.6)	13.8 (± 6.7)
Serum- Albumin (g/dl)	3.4 (± 0.6)	3.5 (± 0.6)	3.6 (± 0.7)	3.4 (± 0.6)	3.3 (± 1.0)
Number of Drugs	6.7 (± 3.1)	6.6 (± 3.0)	5.1 (± 2.3)	7.2 (± 2.9)	6.8 (± 3.6)
Length of Stay in Hospital (days)	7.4 (± 4.8)	6.8 (± 3.4)	7.7 (± 4.4)	7.1 (± 3.8)	9.0 (± 7.8)
3-Month Mortality n (%)	200 (17.9)	26 (10.7)	34 (17.6)	72 (14.5)	68 (36.7)

[‡]MMSE=Mini Mental State Examination. [†] APACHE II= Acute Physiology And Chronic Health Evaluation

(Sleiman et al, 2008)

Characteristics of 125 Hospitalized Elderly Patients with Pneumonia According to Their Premorbid Functional

Characteristic	Total n = 125	Functionally Independent n = 64	Functionally Dependent n = 61	P-value*
Age, mean ± SD	81.0 ± 7.9	80.5 ± 8.4	81.6 ± 7.1	.43
Female, n (%)	72 (57.6)	33 (51.6)	39 (63.9)	.16
Mini-Mental State Examination score, mean ± SD	19.3 ± 9.5	23.2 ± 6.2	15.1 ± 10.7	.00
Geriatric Depression Scale score, mean ± SD	5.2 ± 3.3	4.9 ± 3.1	6.1 ± 3.5	.06
Barthel Index score, mean ± SD				
Before hospitalization	70.1 ± 31.9	94.7 ± 5.5	44.3 ± 27.4	.00
At admission	52.4 ± 37.2	78.4 ± 25.1	25.1 ± 26.7	.00
At discharge	55.4 ± 38.1	80.8 ± 26.1	28.8 ± 29.5	.00
Number of instrumental activities of daily living lost before hospitalization, mean ± SD	4.4 ± 2.9	3.0 ± 2.6	5.8 ± 2.5	.00
Charlson Comorbidity Index, mean ± SD	3.9 ± 2.7	3.0 ± 1.8	4.7 ± 3.1	.00
APACHE II score, mean ± SD	15.1 ± 5.8	13.9 ± 5.9	16.4 ± 5.5	.02
APACHE II acute physiologic subscore, mean ± SD	4.3 ± 4.4	3.5 ± 4.6	5.2 ± 4.1	.03
Number of drugs, mean ± SD	4.2 ± 2.2	4.0 ± 2.1	4.5 ± 2.2	.24
Serum albumin, g/dL, mean ± SD	3.5 ± 0.6	3.7 ± 0.6	3.3 ± 0.6	.002
6-month mortality, n (%)	30 (24)	9 (14.1)	21 (34.4)	.008

*chi-square test for comparing frequencies and Student *t*-test for comparing means.

SD = standard deviation; APACHE = Acute Physiology and Chronic Health Evaluation.

(Rozzini R. et al, JAGS 55:308-9, 2007)

Perdita di funzione dopo malattia acuta →
perdita della capacità omeostatica →
fragilità → aumento della mortalità.
E' un processo reversibile?
Il rapporto tra malattia disabilità ed i fattori
intercorrenti.

Riabilitazione e limiti imposti dalle condizioni cliniche.

	Bassa comorbidità (*)		Elevata comorbidità (**)		p (***)
	Tinetti 0-12 (n = 24)	Tinetti 13-28 (n = 26)	Tinetti 0-12 (n = 17)	Tinetti 13-28 (n = 13)	
Età	74.5±12.6	71.5±8.9	77.8±7.2	76.0±9.1	0.41
Sesso femminile, n (%)	18 (36.0)	17 (34.0)	9 (30.0)	5 (16.7)	0.14
Body Mass Index (kg/cm ²)	25.8±4.5	27.2±4.5	23.4±4.6	24.4±7.2	0.18
Livelli serici di albumina (mg/dl)	3.5±0.4	3.5±0.2	3.5±0.5	3.5±0.6	0.99
Charlson Index	1.5±1.0	1.5±1.1	6.1±1.7	5.1±1.7	0.000
Numero di farmaci	5.0±2.0	4.5±1.4	5.4±1.5	4.3±1.6	0.24
Durata della degenza (giorni)	19.4±6.0	16.0±5.4	27.0±9.5	18.3±3.7	0.000
Mini Mental State Examination	24.7±3.7	27.0±2.6	17.0±9.7	22.1±3.6	0.000
Geriatric Depression Scale (15 item)	4.4±3.2	4.4±4.0	5.2±4.1	6.0±3.4	0.54
Instrumental ADL (funzioni perse)	2.0 ±2.3	2.3±2.2	5.7±2.7	4.2±2.4	0.008
Barthel Index	47.0±17.4	71.2±13.3	29.7±22.5	66.4±10.0	0.000
Delta Tinetti (miglioramento dimissione-ingresso)	16.6±4.6	6.0±8.0	6.5±5.8	4.9±2.6	0.000
Numero totale di procedure fisioterapiche	7.6±2.5	5.3±3.1	6.7±2.3	4.7±1.9	0.003
Rehabilitative Procedure Index (-)	21.3±14.5	13.6±16.3	11.6±10.9	8.1±5.1	0.02

Note

I dati sono rappresentati come media ± deviazione standard se non specificato altrimenti.

(*) Bassa comorbidità = Charlson Index 0-3.

(**) Elevata comorbidità = Charlson Index > 4.

(***) p = significatività all'ANOVA (simple factorial 2-way interactions).

(-) Indica il livello di complessità e intensità delle procedure fisioterapiche ed è stato ottenuto moltiplicando il numero totale di procedure per un livello predefinito di complessità/durata della degenza.

Caratteristiche cliniche, funzionali e cognitive di 80 pazienti anziani ricoverati consecutivamente in un reparto di Riabilitazione geriatrica dopo stratificazione per comorbidità e stato funzionale (scala di Tinetti) all'ingresso e rispettivi livelli di intensità riabilitativa.

(Bellelli G, Pagani M. La riabilitazione ospedaliera del paziente affetto da demenza. In: Trabucchi M. La persona affetta da demenza in ospedale. Carocci, 2007)

MMSE e intensità riabilitativa (80 anziani dopo intervento per frattura di femore)

	Non corretto			Corretto *	
	B	95% CI	P	B	95% CI
MMSE < 18		ref	Ref		ref
MMSE= 19-24	.7	-0.3 to 1.8	.200	.5	-0.8 to 1.7
MMSE= 25-26	2.4	1.2 to 3.5	<.0005	2.4	1.0 to 3.7
MMSE > 27	3.1	2.0 to 4.1	<.0005	2.6	1.1 to 3.9

* età, sesso, Barthel Index pre-frattura.

B = coefficienti di regressione P = significatività al T test

La riabilitazione del paziente affetto da demenza severa

- **Attenzione**

- Ciò che non rientra nel fuoco dell'attenzione non può essere successivamente elaborato e, quindi, l'attenzione è una condizione necessaria per lo svolgimento delle altre funzioni cognitive.

- **Funzioni esecutive**

- Identificare gli obiettivi ed ordinarli gerarchicamente;
- Scomporre ciascun obiettivo nelle sue sottocomponenti;
- Fornire istruzioni semplici e chiare che aiutino il paziente a strutturare e raggiungere l'obiettivo;
- Insegnare strategie per il raggiungimento di obiettivi “quotidiani” specifici (abbigliamento, utilizzo degli ausili, ecc.);

Il deterioramento cognitivo impatta non soltanto sul recupero funzionale “tout court”, ma anche sulla tipologia di esercizi effettuati durante il trattamento riabilitativo e sulla capacità del soggetto di apprendere tecniche ed insegnamenti.

Quale riabilitazione nei soggetti affetti da demenza grave?



Hip Fracture Rehabilitation in Persons with Dementia: How Much Should We Invest?

Elliot Davis, PhD, James Biddison, and Jiska Cohen-Mansfield, PhD

About a year ago, it was discovered that my mother had a serious hip fracture. The top part of the leg bone that fits into the pelvis was completely sheared off and detached... Her hip was repaired by joining the two segments of bone with a metal pin... “The hard reality was that if my mother could not, or would not, respond to the words of the physical therapists to get up and start walking, she would be assigned to a nonmobile ward. “The physical therapy department evaluated her concluded that she would never walk again, and consigned her to the immobility ward... “I decided to try to get her up myself. I simply said to her, “Okay Ma, let’s get up,” and then proceeded to help her up. Once she was on her feet, I helped her to enter the parallel bars. The rest is history.

LETTER TO THE EDITOR

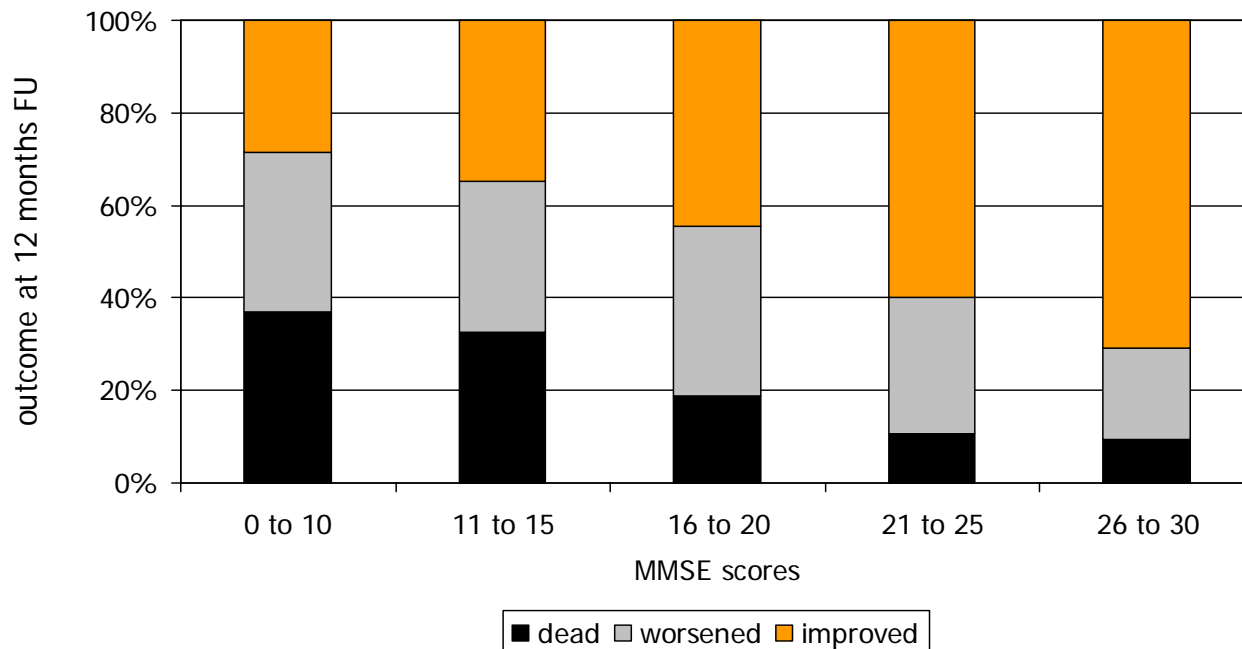
THE REHABILITATION OF PATIENTS WITH DEMENTIA AFTER HIP FRACTURE

- *“They can be happy or sad, in pain or not in pain, content or disturbed.” These alternatives in the conditions of old persons affected by dementia give a heavy responsibility to providers of medical and rehabilitative services.*

Bellelli G, Trabucchi M Annals Long Term Care 2007

Riabilitazione e approccio palliativo: alla ricerca di confini.

Outcomes at 12-month follow-up in 316 elderly patients discharged from a RACU after hip fracture rehabilitation



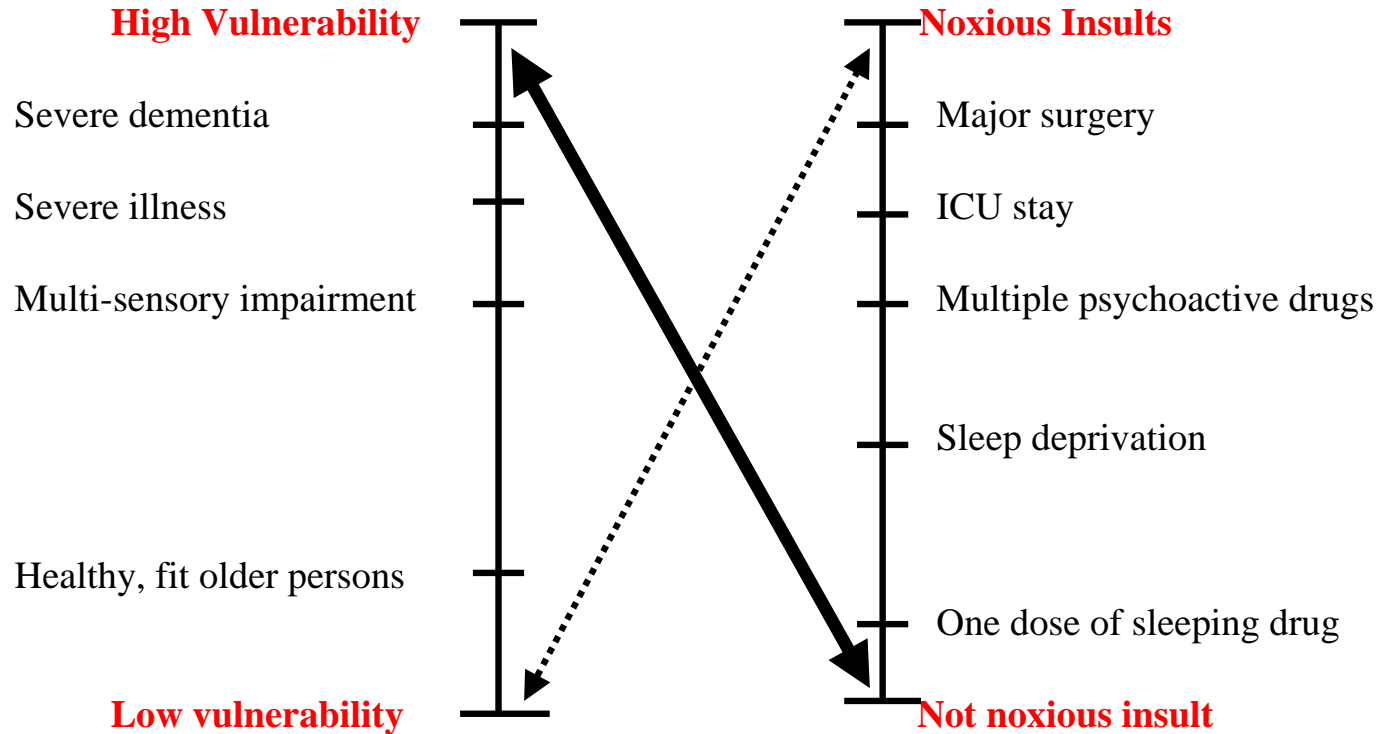
personal data, unpublished 21

La fragilità indotta da varie condizioni e due meccanismi (delirium e instabilità clinica) che ne mediano l'influenza sui risultati della riabilitazione.

Fragilità, delirium, riabilitazione

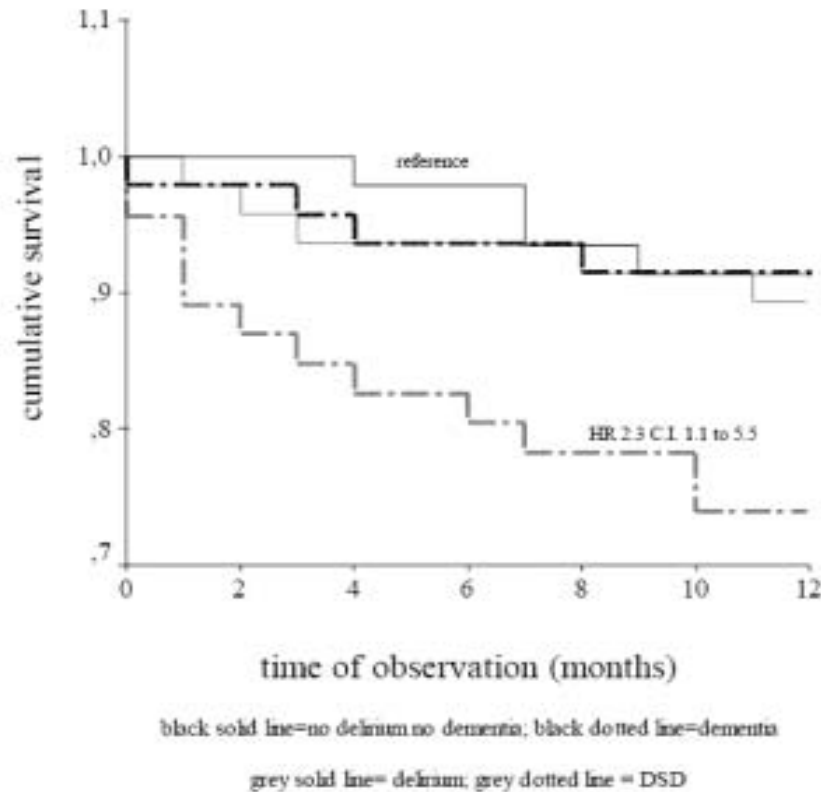
**Predisposing
Factors/Vulnerability**

**Precipitating
Factors/Insults**

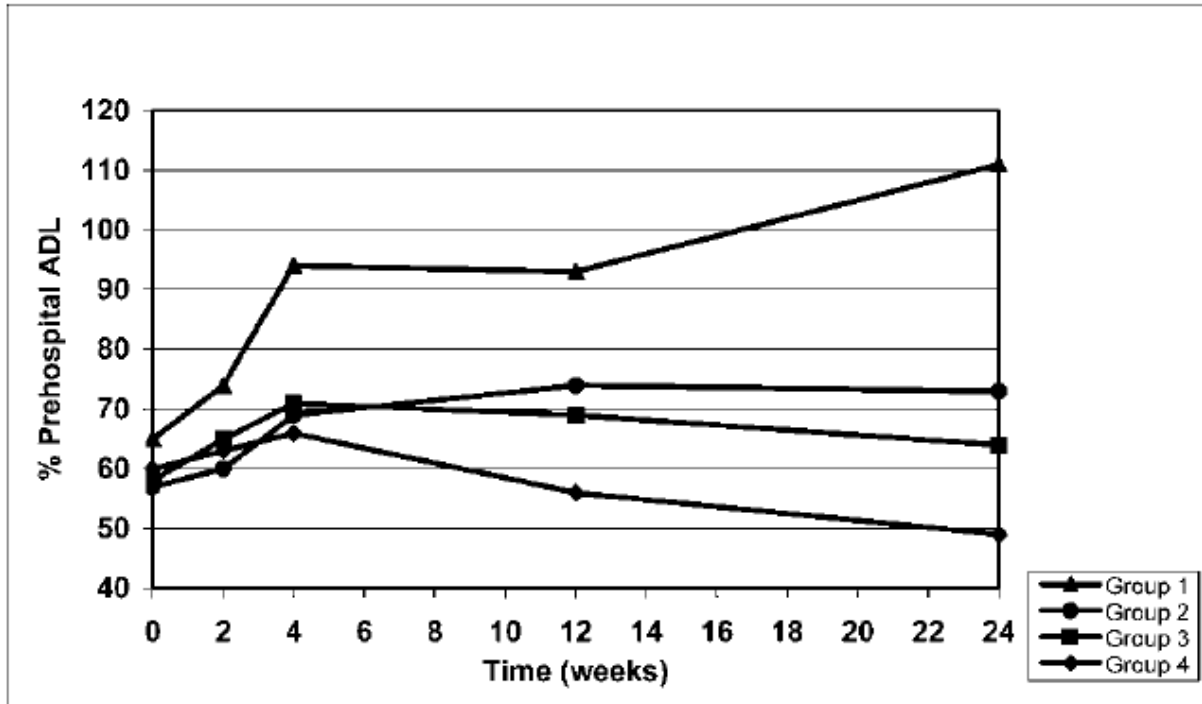


Survival of patients with neither delirium nor dementia, dementia alone, delirium alone and DSD

Bellelli et al., J Gerontol, 2007



Delirium & functional recovery



Group 1 resolved their delirium by 2 weeks, and delirium did not recur during the follow-up (FU).
Group 2 resolved their delirium after 2 weeks, and delirium did not recur during the FU.
Group 3 resolved their delirium (any time), and delirium recurred during the FU.
Group 4 never resolved their delirium during the FU.

Fragilità, instabilità clinica, riabilitazione

Instabilità clinica

	NO	SI
A. Temperatura Corporea >37.8 °C	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B. Frequenza respiratoria >24 /min	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C. Frequenza cardiaca >100 /min	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D. Pressione arteriosa sistolica ≤ 90	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E. Saturazione di ossigeno $<90\%$	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F. Alterato livello di vigilanza §	<input type="checkbox"/>	<input checked="" type="checkbox"/>
G. Incapacità ad alimentarsi autonomamente §§	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Score totale (per il punteggio considerare F e G solo se presente almeno 1 da A ad E)		<input type="checkbox"/>

§ Fare riferimento a sezione IV. della CAM
§§ Barthel Index subscore alimentazione ≤ 2

Demographic and clinical characteristics of 496 patients consecutively admitted to our Rehabilitation and Aged Care Unit, stratified by clinical instability.

	Stable (n=381, 76.8%)	Vital Sign or Delirium (n=63, 12.7%)	Vital Sign and Delirium (n=52, 10.5%)	p*
	Mean±SD or n(%) ^a	Mean±SD or n(%) ^c	Mean±SD or n(%) ^d	
Age	76.5±9.9 ^{b,c}	80.7±6.8 ^a	84.3±6.8 ^a	.000
Gender female, n°, (%)	259 (68.0%)	46 (73.0%)	41 (78.8%)	.090
Mini Mental State Examination	23.5±5.3 ^{b,c}	18.5±6.9 ^a	16.5±7.5 ^a	.000
Geriatric Depression Scale	5.6±3.3	6.4±23.6	6.6±4.1	.315
CIRS	1.7±0.3 ^c	1.8±0.3	1.9±0.3 ^a	.000
Drugs admission	5.1±3.6 ^c	5.8±1.8	6.5±3.2 ^a	.011
Body Mass Index	25.6±6.1 ^{b,c}	23.7±4.9 ^a	23.2±5.5 ^a	.002
Serum albumin	3.2±0.4 ^{b,c}	2.9±0.4 ^a	2.9±0.6 ^a	.000
Serum cholesterol	177.1±45.2 ^c	167.3±52.5	156.3±34.3 ^a	.001
MNA				
Absent	224 (69.8%) ^{b,c}	21 (43.8%) ^{a,c}	7 (20.0%) ^{a,b}	
Risk of malnutrition	79 (24.6%)	18 (37.5%)	13 (37.1%)	.000
Malnutrition	18 (5.6%)	9 (18.8%)	15 (42.9%)	

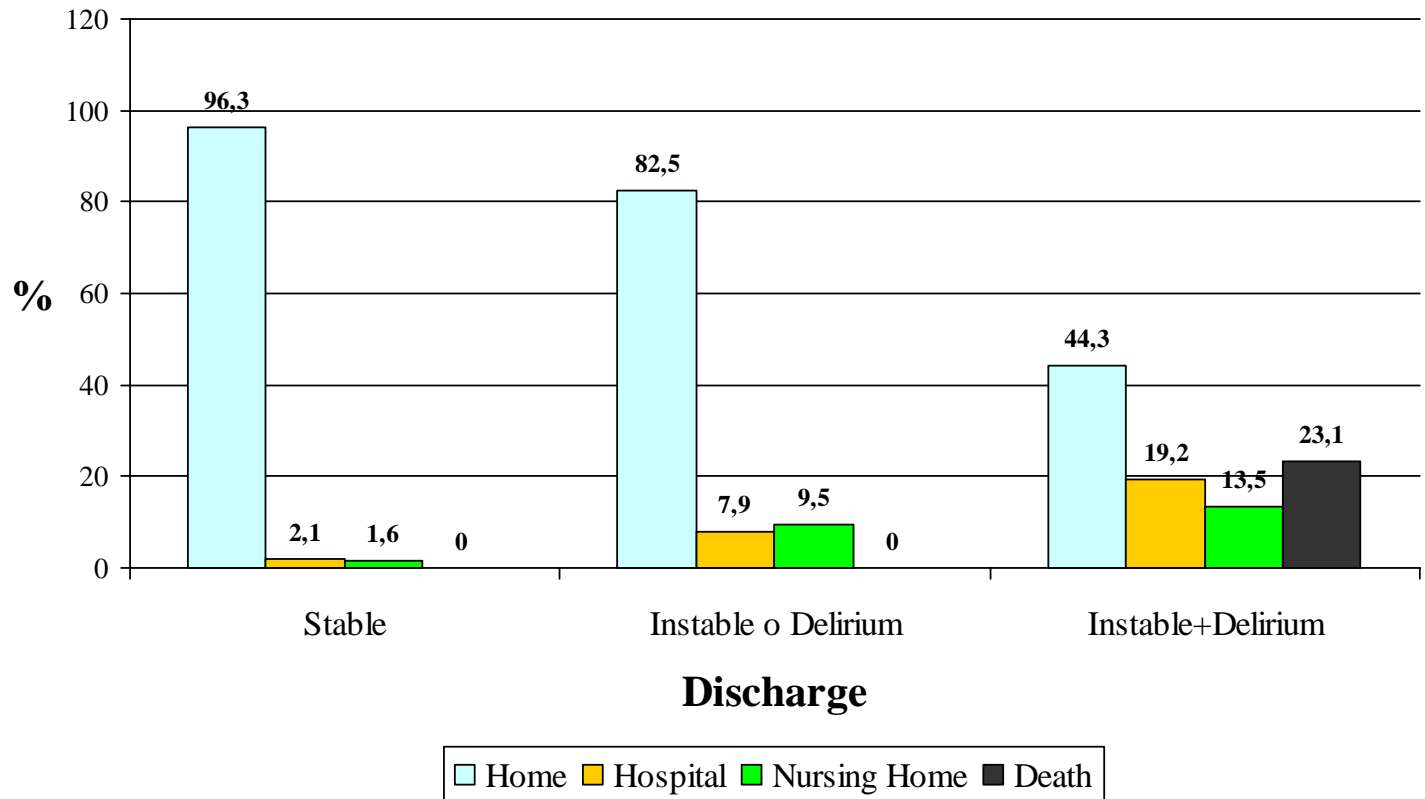
p: significance on anova or Welch test. Differences between groups were checked with a post hoc test.

Clinical and Functional characteristics of 496 patients consecutively admitted to a Rehabilitation and Aged Care Unit, stratified by clinical instability.

	Stable (n=381, 76.8%) Mean±SD or n(%) ^a	Vital Sign or Delirium (n=63, 12.7%) Mean±SD or n(%) ^c	Vital Sign and Delirium (n=52, 10.5%) Mean±SD or n(%) ^d	p*
IADL	2.0±1.8 ^{b,c}	3.0±1.9 ^{a,c}	3.9±1.4 ^{a,b}	.000
Barthel Index Pre-Admission	86.4±18.6 ^b	79.0±23.0 ^a	81.5±16.0	.007
Barthel Index Admission	63.8±24.1 ^{b,c}	31.8±22.1 ^a	28.5±20.3 ^a	.000
Barthel Index Discharge	83.4±21.1 ^{b,c}	62.9±23.2 ^{a,c}	39.5±32.5 ^{a,b}	.000
Tinetti Admission	14.1±7.8 ^{b,c}	6.9±7.9 ^a	4.4±6.5 ^a	.000
Tinetti Discharge	20.7±6.2 ^{b,c}	15.9±7.9 ^{a,c}	11.8±7.8 ^{a,b}	.000
LOS	26.0±10.9 ^b	31.4±27.6 ^a	27.6±17.3	.003
Days of instability	0.0±0.0 ^{b,c}	10.0±9.3 ^{a,c}	15.6±13.6 ^{a,b}	.000

p: significance on anova or Welch test. Differences between groups were checked with a post hoc test.

Adverse outcome at discharge in a population of 496 patients consecutively admitted to our Rehabilitation Unit, stratified by clinical instability.



Biological, functional and cognitive changes of the study subjects during RACU stay according to the type and to the phase of delirium.

	Incident delirium (n=21)					P*	P**	p§	p#	Prevalent delirium (n=109)			p§	p#
	On RACU admission	Last observation before delirium onset	At delirium onset	At resolution of delirium	At discharge from RACU					On RACU admission	At resolution of delirium	At discharge from RACU		
	T0	T1	T2	T3	T4					T0	T1	T2		
APACHE II	--	--	10.3±2.8	7.3±2.1	--	--	.000	--	10.2±3.3	7.5±2.1	--	.000	--	
Trunk control test (0-100)	55.7±30.0	74.3±23.7	39.5±23.7	73.8±22.8	79.9±23.8	.003	.000	.000	.045	37.6±29.2	63.2±27.5	70.9±26.9	.000	.000
Tinetti gait and balance (0-28)	9.8±7.9	13.9±6.9	6.4±5.2	12.9±6.0	17.1±7.6	.000	.000	.000	.001	5.8±6.2	12.5±6.9	15.9±6.4	.000	.000
Clock drawing (0-10)	--	--	1.0±1.5	2.5±2.0	--	--	--	.006	--	1.1±2.2	2.0±2.8	--	.000	--
Digit span forward	--	--	2.9±1.0	3.9±1.2	--	--	--	.001	--	3.4±1.2	3.9±1.3	--	.001	--
Digit span backward	--	--	1.0±0.9	1.5±1.3	--	--	--	.007	--	1.2±1.1	1.4±1.1	--	.016	--
Cognitive estimation	--	--	1.6±1.1	2.2±1.2	--	--	--	.007	--	1.7±1.3	2.0±1.3	--	.010	--
Verbal abstraction	--	--	0.7±0.6	1.8±1.5	--	--	--	.177	--	1.1±1.5	1.6±1.7	--	.000	--

Incident delirium =delirium ascertained at least 48 hours after RACU admission; prevalent delirium =delirium ascertained upon admission. Times (T) of observation are different according to type of delirium (incident or prevalent). Significance was obtained with t-test pair for paired samples. P* denotes significance between T0 and T1 (incident group); P** denotes significance between T1 and T2 (incident group); p§ denotes significance between T2 and T3 (incident group) or between T0 and T1 (prevalent group); p# denotes significance between T3 and T4 (incident group) or between T1 and T2 (prevalent group).

Fragilità e vulnerabilità.

L'inadeguatezza della rete dei servizi.

Dove va il paziente dopo il ricovero in un ambiente riabilitativo?

Il confine tra postacute care e riabilitazione.
Una definizione difficile, ma che sarà necessaria
per una migliore organizzazione dei servizi.

La misura dei risultati come massimo atto di rispetto verso il paziente. L'autoreferenzialità (anche se ammantata di qualità) è lesiva dell'ammalato.

La **fragilità**: ambito che richiede l'impegno di culture diverse per ridare autonomia all'anziano vulnerabile.

Specificità dei servizi di riabilitazione e la logica riabilitativa in tutti i servizi per gli anziani.