

BESONDERHEITEN DES VERLETZTEN GERIATRISCHEN PATIENTEN

**DIPL. MED. TIBOR SCHULTE
OBERARZT GERIATRIE, BESAS**

BERNER SPITALZENTRUM FÜR ALTERSMEDIZIN SILOAH, GÜMLIGEN

HIRSLANDEN 
KLINIK LINDE
CLINIQUE DES TILLEULS



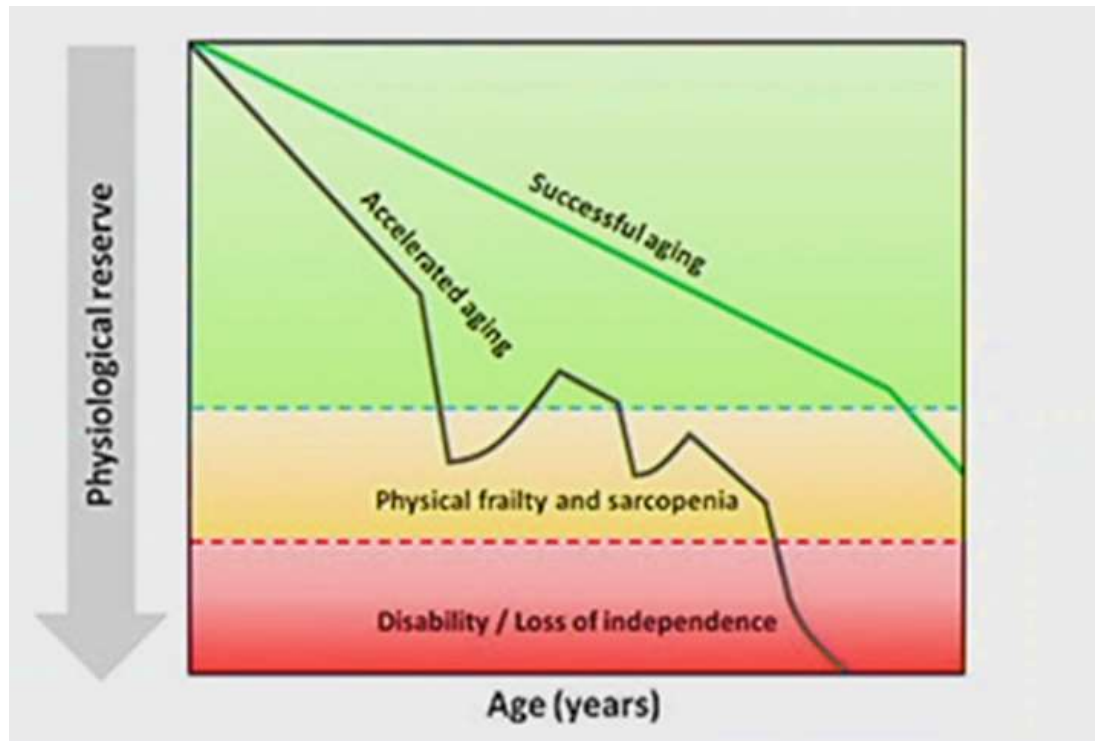
DER VERLETZTE GERIATRISCHE PATIENT

- **Frailty**
- **Morbiditätsfaktoren - Geriatric Giants**
- **Fallbeispiel**
- **Bedeutung des umfassenden Geriatrischen Assessments (CGA)**
- **Interdisziplinäre Betreuung**
- **Belastungslimite**
- **Take-home-Message**

FRAILITY

- **verminderte physiologische Reserve gegenüber Stressoren (Erkrankungen, Traumata) infolge Funktionseinschränkung mehrerer Organsysteme**
- **Zusammenhang mit Multimorbidität häufig (aber nicht zwingend)**
 - **Verschlechterte Prognose für völlige Rekonvaleszenz**
 - **Nebenwirkungsrate bei Einsatz neuer Medikamente erhöht**
 - **Adaptationsfähigkeit auf Umgebungswechsel vermindert**

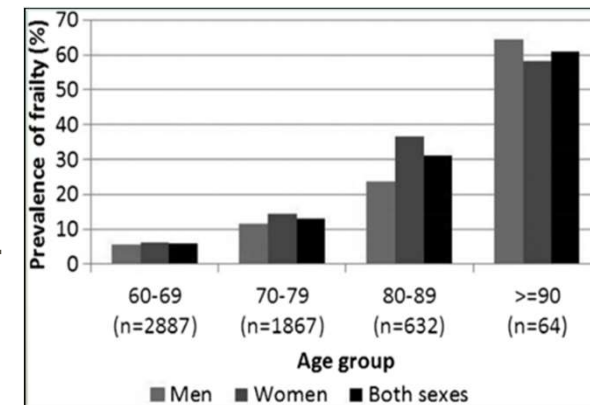
FRAILITY



FRAILITY

Prävalenz:

- **Westliche Länder:**
 - Frailty bei 25 bis 50% in der Altersgruppe 85+
- **Schweiz:**
 - knapp 50% der Hospitalisierten der Altersgruppe 85+
 - 2.3% der 65-69-Jährigen
 - 26% der 65-69-Jährigen zeigen eine Vorstufe («pre-frailty»)!



FRAILITY

Pathophysiologie:

- **Kritische Grenze der Kompensationsfähigkeit der Organsysteme überschritten**
- **Menge der betroffenen Organsysteme entscheidender als Ausmass des Funktionsverlustes ⇔ Zusammenhang mit Multimorbidität**

FRAILITY

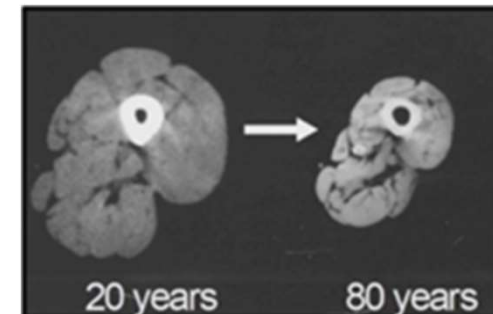
Pathophysiologie:

- **Gehirn:** Synapsen-, Mitochondrienfunktion, Proteintransport verändert
- **Endokrinum:** abnehmende Produktion von Wachstums-, Sexualhormonen sowie DHEA, steigende Cortisolspiegel
- **Immunsystem:** Low-grade-Inflammation mit überschiessender und verlängerter Reaktivität auf Stimuli
- **Skelettmuskulatur:** zunehmender Masse/Kraftverlust → **Sarkopenie**

FRAILITY

Sarkopenie

- **Primäre Sarkopenie:**
 - altersbedingt
- **Sekundäre Sarkopenie:**
 - inaktivitätsbedingt (sitzender Lebensstil, **Immobilität**)
 - **erkrankungsbedingt** (entzündliche, maligne, endokrine etc.)
 - **ernährungsbedingt** (Fehlernährung, Malabsorption/GIT, Medikation)



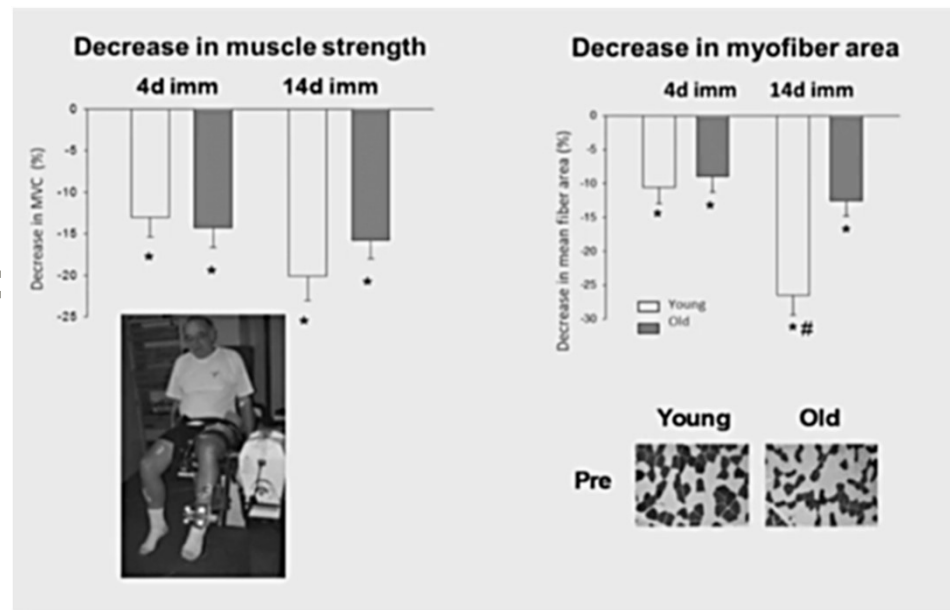
FRAILTY

Sarkopenie

- **Sekundäre Sarkopenie:**
 - inaktivitätsbedingt

Aging affects the transcriptional regulation of human skeletal muscle disuse atrophy

C. Suetta, U. Frandsen et al, PloS one, 2012



FRAILITY

Assessment Tools:

- **Physical oder phenotypic frailty method nach Fried (2001):**
 - Gewichts↓, Erschöpfung, Handkraft ↓, Gehgeschwindigkeit ↓, Aktivität ↓
 - 1-2 Kriterien = pre-frail, ≥ 3 Kriterien = frail
 - aufwendig (Messungen nötig), v. a. Gehgeschwindigkeit
- **Index oder clinical frailty nach Rockwood (2005):**
 - Anhäufung Funktionsdefizite, auch Bezug zu Erkrankungen und kognitiven Einbussen
 - benötigt keine zusätzlichen Untersuchungen zum Geriatrischen Assessment

CLINICAL FRAILITY (N. ROCKWOOD)



1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2 Well – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.



3 Managing Well – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.



4 Vulnerable – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being “slowed up”, and/or being tired during the day.



5 Mildly Frail – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6 Moderately Frail – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.



7 Severely Frail – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



9. Terminally Ill – Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise evidently frail**.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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FRAILTY ↔ KOGNITIVER ABBAU

Kognitive Störungen / Demenz

- **trotz pathophysiologischer Zusammenhänge keine kognitiven Einschätzungen in gängigen Frailty-Assessments**

jedoch

- **erhöht Frailty das Risiko kognitiven Abbaus**
- **verschlechtern kognitive Defizite zusätzlich die Prognose**

GERIATRIC GIANTS (B. ISAACS 1965)

Wesentliche Funktionsdefizite älterer Menschen:

- Immobilität
- Instabilität (Stürze)
- Inkontinenz
- Kognitionseinbussen (impaired Intellect)
- Iatrogene Anfälligkeit

NEW GERIATRIC GIANTS (MORLEY 2017)

Wesentliche Funktionsdefizite älterer Menschen:

- Immobilität
- Instabilität (Stürze)
- Inkontinenz
- Kognitionseinbussen (impaired Intellect)
- Iatrogene Anfälligkeit
- Frailty
- Sarkopenie
- Inkontinenz
- Cognitive impairment
- Malnutrition

=> Perioperative Herausforderungen!

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935

- Verwitwet seit 7 Jahren, 3 Kinder
- Lebt alleine in 3.5-Zimmer-Wohnung im 3. Stock ohne Lift
- In BADL und IADL selbstständig (bis auf Putzhilfe, schwere Einkäufe)
- KV-Lehre, ehemalige Versicherungsangestellte
- **Sanitätspolizei (durch Nachbarn): liegt im Bad, Sz rechtes Hüftgelenk, aussenrotiert**
- **Notfallstation: wach, orientiert; BD 190/80, P \approx 90/min., absolut arrhythmisch, kardial kompensiert, INR 3.9, Hb 102g/l, Umfangs \uparrow Oberschenkel; eGFR 47ml/min.**
- **Röntgen: mediale Oberschenkelhalsfraktur rechts**

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – Persönliche Anamnese:

- St. nach Hüft-TP links 2008 wegen Coxarthrose
- Arterielle Hypertonie
- St. nach Mammakarzinom rechts 2017
- Diabetes mellitus Typ 2 (oAD)
- Paroxysmales Vorhofflimmern (oAK)
- Reizblase
- Insomnie

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935



**Problemlose ITN; bis
auf intermittierende
Phasen der Hypotonie
unkomplizierter peri-
operativer Verlauf**

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – 1. postoperativer Tag



- **Bioxx-↓, hyperton, HV-Stauung, akzentuierte Anämie**
- **Initial bewusstseinsklar bei fluktuierender Orientierung, gegen Abend hyperaktiv, klagt Schmerzen und ständigen Harndrang bei einliegendem DK**
- **Nachts Sturz, dabei PVK + Blasenkatheter akzidentell entfernt**

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – 1. postoperativer Tag



- Lasix i. v., Antihypertensiva, Transfusion
- Quetiapin, Opiate
- Neu-Anlage der Zugänge, in der Folge weitere Erhöhung der Sedation und Opiat-Analgesie

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – ab 2. postoperativem Tag



- **überwiegend hypoaktiv, muss durch Pflege regelmässig gelagert werden**
- **Makrohämaturie, Fieber => Rocephin i. v., erneuter DK-Wechsel**
- **auf Nachfrage (VAS) weiter Schmerzen (?) => zusätzlich Opiat-Gaben**
- **geringe Nahrungsaufnahme (Schwäche, Übelkeit, Obstipation, verschluckt sich)**

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – ab 3. postoperativem Tag



- **Weiter müde, Hilfe für Bettrand-Mobilisation, kaum sitzstabil, Orthostase**
- **Erste Gehversuche nur unter intensiver Anleitung der Physiotherapie**
- **wenige Schritte am Gehbock in Begleitung am 7. postoperativen Tag möglich (Verlegung in Rehabilitation)**

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – Probleme

- **Labile Kreislaufsituation, hyperten, aber Orthostase-Tendenz und eingeschränkte Toleranz bezüglich Volumengabe**
- **Delir**
- **Erhöhte Opiat-Sensitivität, auch GIT-Nebenwirkungen (Nausea, Obstipation) mit der Folge verzögert einsetzender enteraler Nahrungsaufnahme**
- **Dekubitusneigung aufgrund Immobilität**

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – Komplettierung Anamnese (CGA)

- Gehen ohne Hilfsmittel, jedoch bereits Sturz vor 6 Monaten, leichte Sturzangst
- Neben Hilfe bei Putzen und schweren Einkäufe neu auch bei Finanzen/Agenda
- Weitere Diagnosen: chronisch-venöse Insuffizienz, alltagsrelevante Presbyakusis, Polypharmazie (oAK, oAD, Ca-Antagonist, Diuretikum, Anticholinergikum, Benzo)
- **Fremd-Anamnese (Tochter):** schon 2017 kurze Verwirrtheit postoperativ (i. R. Lumpektomie); Kurzzeitgedächtnis seit ca. 1 Jahr↓, schnell überfordert, seltener draussen, Stimmung↓; neue Hörgeräte schwierig; Medikamentenmanagement?

FALLBEISPIEL

Frau Z. Magdalena, 12.05.1935 – Assessment: Geriatric Giants

- **Reduzierte Mobilität**
- **2. Sturz** in einem Jahr
- **Dranginkontinenz**
- **Kognitive Defizite: Gedächtnis und komplexe Informationsverarbeitung/ Handlungsplanung** (Finanzen, Agenda, Medikamente - Isolationstendenz)
- **Polypharmazie:** Diuretikum, Calciumantagonist, Benzos => Orthostase/ Sturzneigung/Inkontinenz; Anticholinergikum, Benzos => Kognitive Störung

FRAILITY - INDEX F. NACH ROCKWOOD

HIRSLANDEN



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CLINIQUE DES TILLEULS



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PERIOPERATIVES MANAGEMENT DES GERIATRISCHEN PATIENTEN

Delir verhindern?

- Anästhesieform: Auswahl ohne Effekt auf Delirentwicklung
- Spezielle Prämedikation: Antipsychotika zur Prävention nicht evidenzbasiert (Meta-Analyse Journal American Geriatric Soc., 2016)
- **Entscheidend:**
 - Risikofaktoren erkennen, Angehörige aufklären (auch über Frailty!)
 - zentralwirksame Substanzen perioperativ zurückhaltend einsetzen
 - nicht-medikamentöse Massnahmen der Delirprävention!

PERIOPERATIVES MANAGEMENT DES GERIATRISCHEN PATIENTEN

Core interventions		
Orientation	ELS, volunteers	Daily orientation, orientation board with names of care team members and daily schedule
Therapeutic activities	ELS, volunteers	Cognitive stimulation activities three times daily
Sleep enhancement	ELNS, ELS, volunteers	At bedtime, warm milk or herbal tea, relaxation tapes or music, and back massage. Ward-wide noise reduction and schedule adjustments to allow uninterrupted sleep
Early mobilization	ELNS, ELS, volunteers	Ambulation or active range-of-motion exercises three times daily. Minimizing use of immobilizing equipment
Vision protocol & Vision protocol - Blindness	ELS, volunteers	Visual aids (e.g., glasses, magnifying lenses) and adaptive equipment (e.g., large illuminated telephone keypads, large print books, fluorescent tape on call bell), with daily reinforcement
Hearing protocol	ELNS, ELS, volunteers	Portable amplifying devices and special communication techniques, with daily reinforcement. Ear wax clearing by ELNS as needed
Fluid repletion/constipation	ELNS, ELS, volunteers	Encourage fluids. Encourage mobility and regular toileting. Added fiber to diet. Laxatives if needed
Feeding assistance	ELS, volunteers	Feeding assistance and encouragement during meals

→ Intervention resulted in significant reductions in number and duration of episodes of delirium in hospitalized older patients

The Hospital Elder Life Program: model of care to prevent cognitive and functional decline in older patients, Sharon K. Inouye et al., J Am Geriatr Soc. 2000 Dec

PERIOPERATIVES MANAGEMENT DES GERIATRISCHEN PATIENTEN

Umfassendes Geriatriches Assessment CGA (Meta-Analyse von 28 RCT, Stuck et al., 1993):

- **reduziert Mortalität**
- **verringert Notwendigkeit von Pflegeheim-Übertritten**
- **verringert Akut-Hospitalisationen**
- **verbessert Kognition**
- **verbessert körperliche Funktionen (Selbstständigkeit, Mobilität)**

BRAUCHT ES ORTHOGERIATRIE?

Elective orthopaedic patients aged 65+		
	PRE-POPS	POPS
	n = 54	n = 44
Uncontrolled pain	32% (17)	2% (1)
Nil by mouth >4days	9% (5)	0
Urinary retention	17% (9)	7% (3)
Constipation	33% (18)	16% (7)
Bedridden for >3days	30% (16)	9% (4)

Proactive care of older people undergoing surgery ('POPS'): designing... a comprehensive geriatric assessment service for older elective surgical patients, Harari et al., Age Ageing, 2007 Mar;36(2):190-6

BRAUCHT ES ORTHOGERIATRIE?

Pia Kjaer Kristensen et al, *Age and Ageing*, Volume 45, Issue 1, January 2016, p. 66–71

Can improved quality of care explain the success of orthogeriatric units? A population-based cohort study of elderly hip# patients

- **Lower 30-day mortality** on admission to orthogeriatric unit, consistent in all subgroups independent of patient risk profile
- **Higher quality of care** possible on admission to orthogeriatric units
- **Similar time to surgery** as in ordinary orthopaedic unit

BRAUCHT ES ORTHOGERIATRIE?

Carl Neuerburg et al, BMC Geriatrics (2019) 19:330

Improved outcome in elderly hip# patients for co-managed care vs. conventional surgical treatment: retrop., dual-center cohort study

- **one-year mortality was significantly reduced** in patients being treated in the OGC unit compared to CTC
- **significant reduction of readmission rates** was observed for patients being treated in the OGC department
- **significantly** more of the OGC treated patients state a **better status of health after 12 month following hip fracture surgery**

POSTOPERATIVE TEILBELASTUNG

Non-weight-bearing status compromises functional level up to 1 yr after hip fracture surgery (P. Ariza-Vega et al., Am J Phys Medicine & Rehab 2014)

- 194 hip# patients (36 m, 158 wm), mean age 81.4 yrs
- 75 patients (39%) had to maintain wb restrictions up to 4 weeks
- **WB status after surgery**, in addition to prefracture function, cognitive status, health status, age and fracture type, **was found to be an independent predictor of the 1-yr functional outcome in hip fracture patients**

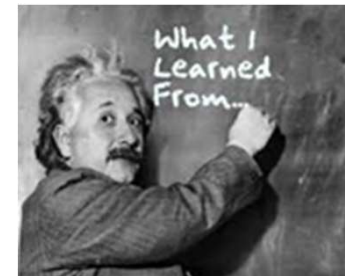
POSTOPERATIVE TEILBELASTUNG

Inability of Older Patients with Hip# to Maintain postoperative Weight-Bearing Restrictions (Kammerlander et al, J of Bone Joint Surgery 2018)

- Hip# patients ≥ 75 yrs compared to ankle# patients 18-40 yrs
- Elderly patients seem to be unable to maintain wb restrictions
- As early mobilization of geriatric trauma patients is an important element for a successful rehabilitation, **the directive of postoperative partial weight-bearing for these patients should be abandoned**

Take-home-message

- Frailty entscheidender Faktor für die Prognose
- Zusätzliche kognitive Defizite erhöhen den Schweregrad
- Delir-Risiko erkennen, Prophylaxe entscheidend, nicht-medikamentös
- Frühe Mobilisation mit voller Belastung, falls toleriert, wichtig
- (Zusätzliche) sekundäre Sarkopenie durch Immobilisation vermeiden
- Interdisziplinäre Betreuung aufgrund der Komplexität sinnvoll



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- Inability of Older Adult Patients with Hip Fracture to Maintain Postoperative Weight-Bearing Restrictions, Kammerlander et al, *The Journal of Bone and Joint Surgery*, June 6, 2018, Vol. 100, p936-941
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