戦略会議

頸髄損傷のリハビリテーション

Dr:乾

PT:岩崎

OT:松原

頚髄損傷の疫学

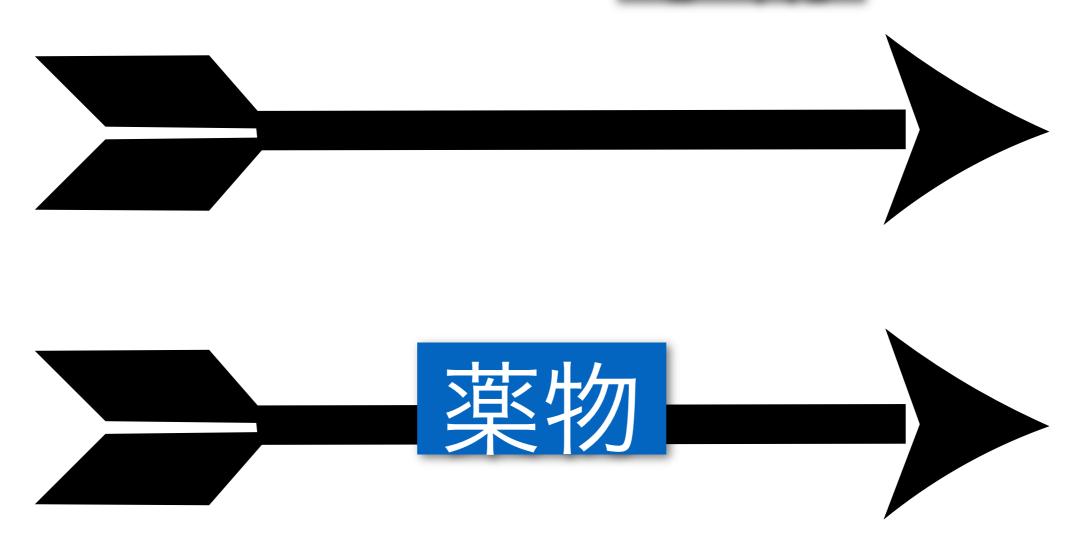
World: 25-50万/year

頚髄損傷の疫学

World: 25-50万/year SMC: 45/2014年 67/2015年

76/2016年

手術





リハビリテーション

リハビリテーション

・筋量を維持

Houle et al, 1999

・運動・感覚機能の再獲得

Hutchison, 2004. Sandraw-Feinberg, 2009

・シナプス間の再形成を誘導

Vaynman, 2003

・脊髄・筋組織内のNeurotorophic factorの濃度上昇

Gomez-Pinilla, 2002. Ying, 2005. Cote, 2011

・損傷部位周囲の炎症緩和

Sandraw-Feinberg, 2009

"リノノビリは早く"

Immobilisation@ICU

- ・48時間以降にatrophyが始まる
- ・1日あたり1.0%-5.5%の筋力低下
- ・最初の1wで40%までの筋力低下が起こる
- ・PVCでのventilationによる横隔筋の筋力低下

Cameron S, et al. Journal of Critical Care 30: 664-672 . 2015

W

Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial

William D Schweickert, Mark C Pohlman, Anne S Pohlman, Celerina Nigos, Amy J Pawlik, Cheryl L Esbrook, Linda Spears, Megan Miller, Mietka Franczyk, Deanna Deprizio, Gregory A Schmidt, Amy Bowman, Rhonda Barr, Kathryn E McCallister, Jesse B Hall, John P Kress

Lancet 2009; 373: 1874–82

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24時間以内の介入
せん妄期間短縮
Med 2.0 vs 4.0 日
IQR (0.0-6.0) (2.0-8.0)
ベンチレーターフリー期間の増加
Med 23.5 vs 21.1日
IQR (7.4-25.6) (0.0-23.8)
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Systematic review:

リハビリテーションの介入は早期が望ましい

Systematic review: リハビリテーションの介入は早期が望ましい

Table 6. Evidentiar	y table – timing	of rehabilitation
---------------------	------------------	-------------------

First Author	Year	Design (total no. of subjects)	Grading	Conclusion
Deng ¹	2004	Retrospective cohort (92)	Low	Immediate admission to SCI rehab group had improved BI, FIM scores and motor recovery compared to delayed admission group
Sumida ²⁸	2001	Retrospective cohort (123)	Low	Admission to SCI rehab within 2 weeks resulted in improved motor recovery rate and FIM scores compared to 2 weeks to 6 months group and greater than 6 months group.
Scivoletto ²⁹	2005	Retrospective cohort (150)	Low	Matched cohorts grouped as admission < 30 days, 30-60 days, >60 days. Early group had better BI improvements, without confounding improved motor recovery

Systematic review:

リハビリテーションの介入は早期が望ましい

Table 6. Evidentiar	y table – timing of rehabilitation
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First Author	Year	Design (total no. of subjects)	Grading	Conclusion
Deng ¹	2004	Retrospective cohort (92)	Low	介入日は不明、中国語やし
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Systematic review:

リハビリテーションの介入は早期が望ましい

Table 6. Evide	ntiary tab	le – timing of rehabilitation		
First Author	Year	Design (total no. of subjects)	Grading	Conclusion
Deng ¹	2004	Retrospective cohort (92)	Low	介入日は不明、中国語やし
Sumida ²⁸	2001	Retrospective cohort (123)	Low	2週間以内 2 weeks resulted in improved scores compared to 2 weeks to 6 n 6 months group.
Scivoletto ²⁹	2005	Retrospective cohort (150)	Low	as admission < 30 days, 30-60 days, better BI improvements, without tor recovery

Systematic review:

リハビリテーションの介入は早期が望ましい

Labruyere R. Spine 35:s259-s262.2010

介入日は不明、中国語やし

2週間以内

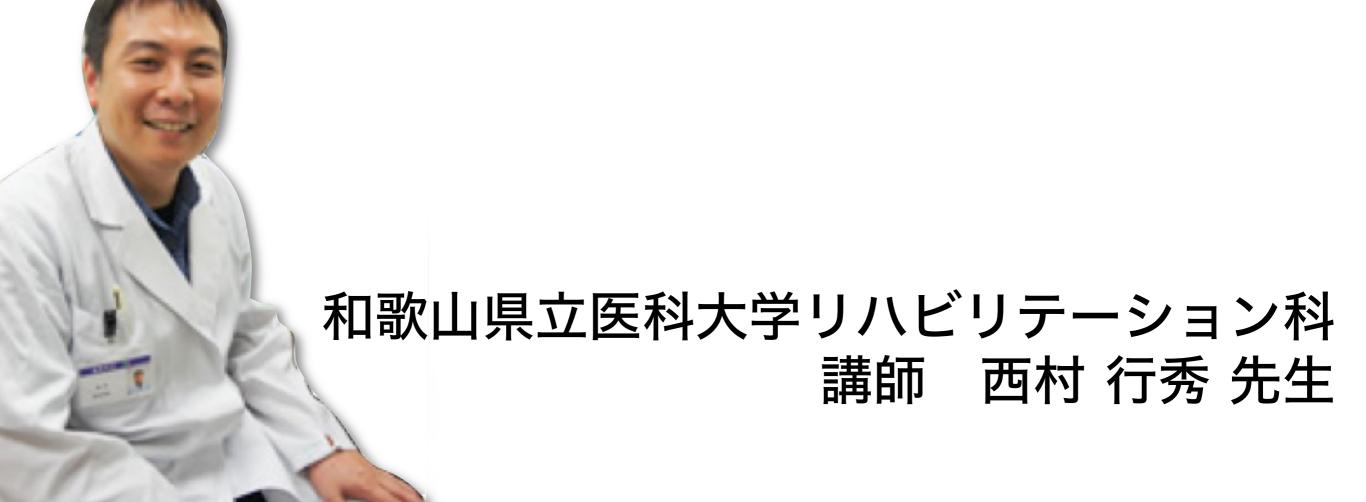
30日以内

SCI rehabilitation@ICU

未知の領域

先駆者に学ぶ





"寝かせるな!!"

和歌山県立医科大学リハビリテーション科講師 西村 行秀 先生

臥床させる

- → 心臓に戻ってくる血液が増える
- → 生体は血液が多すぎると判断
- →循環血液量減る
- → 立つと下肢に静脈血液がおき、静脈還流量が減る
- → 立位時血圧が保てず寝てしまう
- → ますます循環血液量がへる
- → 起き上がれなくなる

臥床させる

- → 心臓に戻ってくる血液が増える
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- → ますます循環血液量がへる
- → 起き上がれなくなる

Stand UP!!

Stand UP!!



現状

入院からリハ開始までの日数

2013.4.1-2015.5.18

4 □ (3-8)

Med (IQR)

2015.5.18 脊損チーム結成



P





入院からリハ開始までの日数

2013.4.1-2015.5.18

4 | (3-8) Med (IQR)

2015.5.18-2016.8.31

入院からリハ開始までの日数

2013.4.1-2015.5.18

4日(3-8)
Med (IQR)

2015.5.18-2016.8.31

3目(2-3) Med (IQR)



仮説

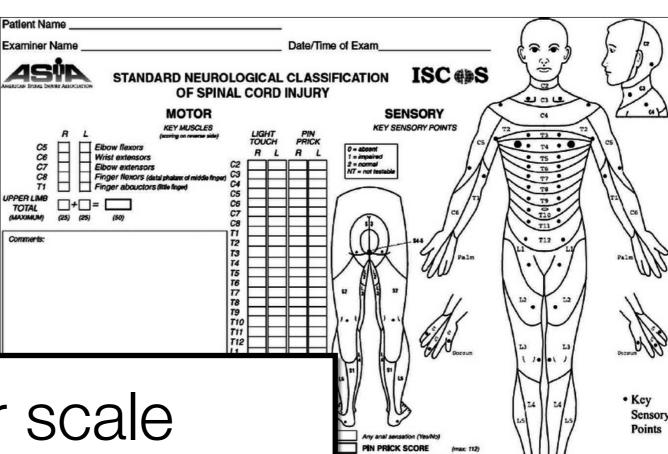
なるべく早くから 立位・歩行を重要視したリハビリテーションを行う



神経学的予後改善

現在





LIGHT TOUCH SCORE

AMS: ASIA motor scale

ASS: ASIA sensory scale

AIS: ASIA impairment scale

候補

✓QOL関連

候補

- ✓ QOL関連
 · SF-36v2

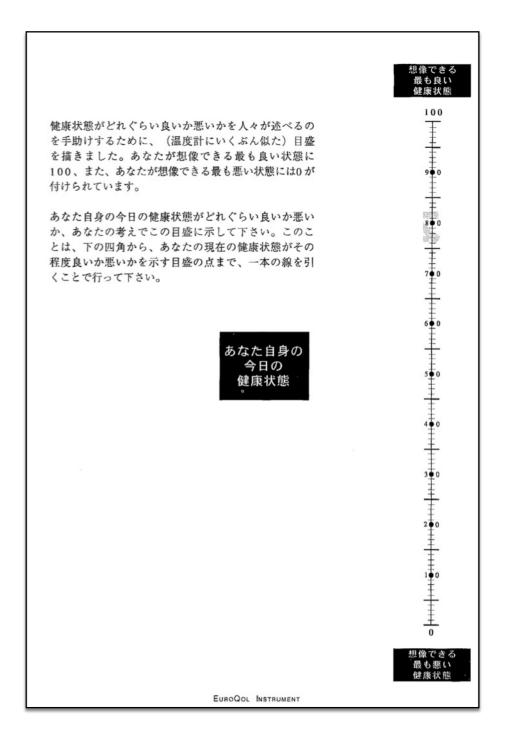
 - EQ-5D

候補

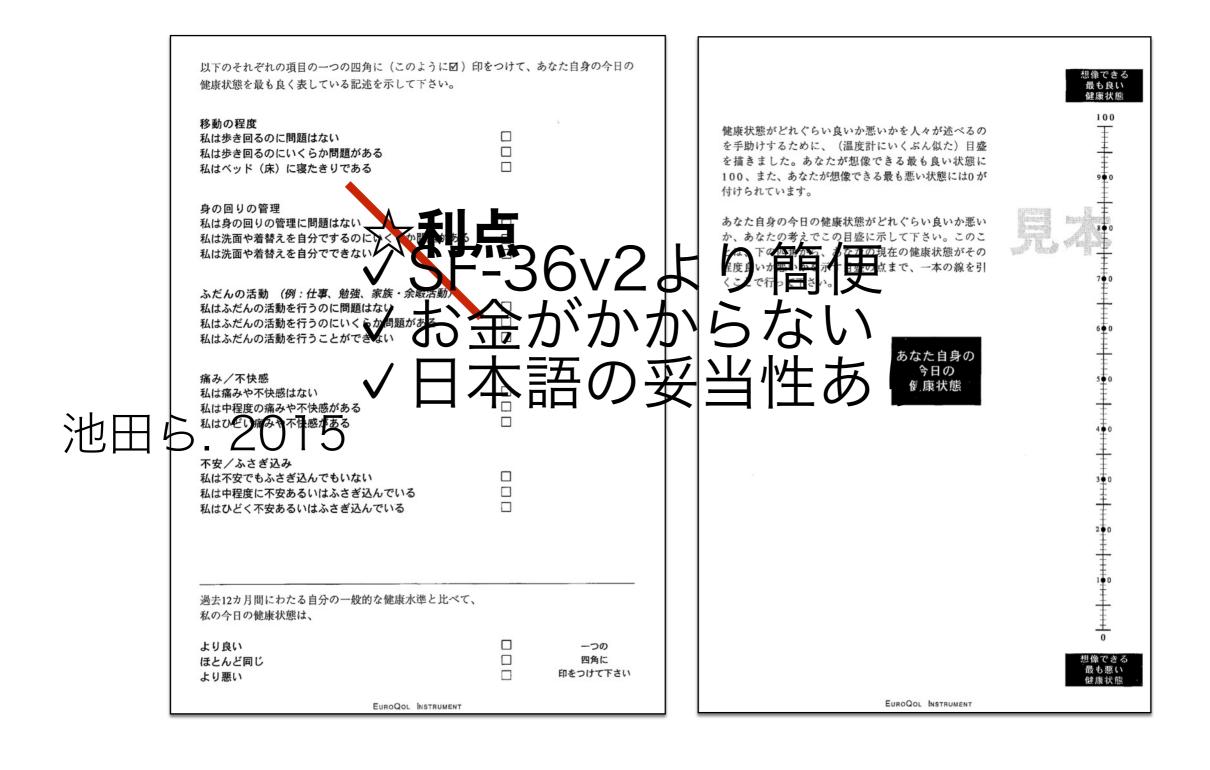
```
✓ QOL関連
• SF-36v2
• EQ-5D
EQ-5D
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EQ-5D: EuroQol 5 Dimension

以下のそれぞれの項目の一つの四角に(このように☑)印を健康状態を最も良く表している記述を示して下さい。	をつけて、あ	oなた自身の今日の
移動の程度 私は歩き回るのに問題はない 私は歩き回るのにいくらか問題がある 私はベッド(床)に寝たきりである		¥
身の回りの管理 私は身の回りの管理に問題はない 私は洗面や着替えを自分でするのにいくらか問題がある 私は洗面や着替えを自分でできない		
ふだんの活動 (例:仕事、勉強、家族・余暇活動) 私はふだんの活動を行うのに問題はない 私はふだんの活動を行うのにいくらか問題がある 私はふだんの活動を行うことができない		
痛み/不快感 私は痛みや不快感はない 私は中程度の痛みや不快感がある 私はひどい痛みや不快感がある		
不安/ふさぎ込み 私は不安でもふさぎ込んでもいない 私は中程度に不安あるいはふさぎ込んでいる 私はひどく不安あるいはふさぎ込んでいる		
過去12カ月間にわたる自分の一般的な健康水準と比べて、 私の今日の健康状態は、		
より良い ほとんど同じ より悪い		一つの 四角に 印をつけて下さい
Euro Cou hozzuwanz		



EQ-5D: EuroQol 5 Dimension



候補

```
✓ QOL関連
• SF-36v2
• EQ-5D
EQ-5D
```

患者を評価する@ICU

候補

- ✓QOL関連
 - SF-36v2
 - EQ-5D EQ-5D
- ✓ADL関連
 - FIM
 - · SCIM III

患者を評価する@ICU

候補

✓ QOL関連 • SF-36v2 • EQ-5D EQ-5D

✓ ADL関連

SCIM III

\equiv	LOEWENSTEIN HOSPITAL REHABILITATION CENTER Affiliated with the Sackler Faculty of Medicine, Tel-Aviv University
שירותי בריאות	Department IV, Medical Director: Dr. Amiram Catz Tel: 972-9-7709090 Fax: 972-9-7709986 e-mail: amiramc@clalit.org.il
כללית	Patient Name: ID: Examiner Name:
כללית	(Enter the score for each function in the adjacent square, below the date. The form may be used for up to 6 examination
SCIN	1-SPINAL CORD INDEPENDENCE MEASURE Seximal 2 3 Version III, Sept 14, 2002 2 3 4 5 6 6 6 6 6 6 6 6 6
Self-Care	
	g (cutting, opening containers, pouring, bringing food to mouth, holding cup with fluid)
	parenteral, gastrostomy, or fully assisted oral feeding
	partial assistance for eating and/or drinking, or for wearing adaptive devices
Eats ind	dependently; needs adaptive devices or assistance only for cutting food and/or pouring and/or opening containers
	d drinks independently; does not require assistance or adaptive devices
	g (soaping, washing, drying body and head, manipulating water tap). A-upper body; B-lower body
	ires total assistance [] [] [] [] [] [] [] [] [] [
	es independently with adaptive devices or in a specific setting (e.g., bars, chair)
	es independently; does not require adaptive devices or specific setting (not customary for healthy people) (adss)
B. 0. Requir	res total assistance
	ires partial assistance
	es independently with adaptive devices or in a specific setting (adss)
	es independently; does not require adaptive devices (adss) or specific setting Ig (clothes, shoes, permanent orthoses: dressing, wearing, undressing). A-upper body; B-lower body
	ires total assistance
-	ires partial assistance with clothes without buttons, zippers or laces (cwobzl)
	endent with cwobzl; requires adaptive devices and/or specific settings (adss)
	endent with cwobzl; does not require adss; needs assistance or adss only for bzl
	es (any cloth) independently; does not require adaptive devices or specific setting
	res total assistance
	ires partial assistancewith clothes without buttons, zipps or laces (cwobzl) endent with cwobzl; requires adaptive devices and/or specific settings (adss)
	endent with cwobzl, requires adaptive devices and/or specific settings (auss)
	es (any cloth) independently; does not require adaptive devices or specific setting
4. Groomi	ing (washing hands and face, brushing teeth, combing hair, shaving, applying makeup)
	es total assistance
	es partial assistance
	s independently with adaptive devices s independently without adaptive devices
5. G100III	SUBTOTAL (0-20)
Respirati	on and Sphincter Management
5. Respira	• -
0. Requires	s tracheal tube (TT) and permanent or intermittent assisted ventilation (IAV)
	s independently with TT; requires oxygen, much assistance in coughing or TT management
	s independently with TT; requires little assistance in coughing or TT management s independently without TT; requires oxygen, much assistance in coughing, a mask (e.g., peep) or IAV (bipap)
	s independently without TT; requires oxygen, much assistance in coughing, a mask (e.g., peep) or IAV (olpap)
	s independently without assistance or device
	er Management - Bladder
0. Indwelli	
	l urine volume (RUV) > 100cc; no regular catheterization or assisted intermittent catheterization
	100cc or intermittent self-catheterization; needs assistance for applying drainage instrument tent self-catheterization; uses external drainage instrument; does not need assistance for applying
	tent self-catheterization; continent between catheterizations; does not use external drainage instrument
	00cc; needs only external urine drainage; no assistance is required for drainage
	00cc; continent; does not use external drainage instrument
	er Management - Bowel
	r timing or very low frequency (less than once in 3 days) of bowel movements
-	timing, but requires assistance (e.g., for applying suppository); rare accidents (less than twice a month) bowel movements, without assistance; rare accidents (less than twice a month)
	bowel movements, without assistance; rare accidents (less than twice a month) bowel movements, without assistance; no accidents
	Collet (perineal hygiene, adjustment of clothes before/after, use of napkins or diapers).
	s total assistance
	s partial assistance; does not clean self
	s partial assistance; cleans self independently
4 77	let independently in all tasks but needs adaptive devices or special setting (e.g., bars)
	let independently; does not require adaptive devices or special setting)

Mobility (room and toilet) DATE	\ \ \ \ \ \ \ \ \
9. Mobility in Bed and Action to Prevent Pressure Sores	
 Needs assistance in all activities: turning upper body in bed, turning lower body in bed, sitting up in bed, doing push-ups in wheelchair, with or without adaptive devices, but not with Performs one of the activities without assistance 	electric aids
Performs two or three of the activities without assistance Performs all the bed mobility and pressure release activities independently	
10. Transfers: bed-wheelchair (locking wheelchair, lifting footrests, removing	
and adjusting arm rests, transferring, lifting feet). 0. Requires total assistance	
Needs partial assistance and/or supervision, and/or adaptive devices (e.g., sliding board)	
 Independent (or does not require wheelchair) Transfers: wheelchair-toilet-tub (if uses toilet wheelchair: transfers to and from; if uses regular wheelchair: locking wheelchair, lifting footrests, removing and adjusting armrests, transferring, lifting feet) 	
Requires total assistance Needs partial assistance and/or supervision, and/or adaptive devices (e.g., grab-bars) Independent (or does not require wheelchair)	
Mobility (indoors and outdoors, on even surface)	
12. Mobility Indoors	
Requires total assistance Needs electric wheelchair or partial assistance to operate manual wheelchair Moves independently in manual wheelchair Requires supervision while walking (with or without devices)	
5. Walks with crutches or two canes (reciprocal walking) 6. Walks with one cane 7. Needs leg orthosis only 8. Walks without walking aids	
13. Mobility for Moderate Distances (10-100 meters)	
O. Requires total assistance 1. Needs electric wheelchair or partial assistance to operate manual wheelchair 2. Moves independently in manual wheelchair 3. Requires supervision while walking (with or without devices) 4. Walks with a walking frame or crutches (swing) 5. Walks with crutches or two canes (reciprocal walking) 6. Walks with one cane 7. Needs leg orthosis only	
8. Walks without walking aids	
14. Mobility Outdoors (more than 100 meters)	
O. Requires total assistance 1. Needs electric wheelchair or partial assistance to operate manual wheelchair 2. Moves independently in manual wheelchair 3. Requires supervision while walking (with or without devices) 4. Walks with a walking frame or crutches (swing) 5. Walks with crutches or two canes (reciprocal waking) 6. Walks with one cane 7. Needs leg orthosis only	
8. Walks without walking aids	
15. Stair Management 0. Unable to ascend or descend stairs	
Ascends and descends at least 3 steps with support or supervision of another person Ascends and descends at least 3 steps with support of handrail and/or crutch or cane Ascends and descends at least 3 steps without any support or supervision	
 16. Transfers: wheelchair-car (approaching car, locking wheelchair, removing armand footrests, transferring to and from car, bringing wheelchair into and out of car) 0. Requires total assistance 1. Needs partial assistance and/or supervision and/or adaptive devices 	
2. Transfers independent; does not require adaptive devices (or does not require wheelchair)	
17. Transfers: ground-wheelchair	
Requires assistance Transfers independent with or without adaptive devices (or does not require wheelchair) SUBTOTAL (0-40)	
TOTAL SCIM SCORE (0-100)	

セルフケア:20点

SCIM-SPINAL CORD INDEPENDENCE MEASURE EXam 1 2 3 Version III, Sept 14, 2002
Self-Care DATE \\\\\\
1. Feeding (cutting, opening containers, pouring, bringing food to mouth, holding cup with fluid)
0. Needs parenteral, gastrostomy, or fully assisted oral feeding
1. Needs partial assistance for eating and/or drinking, or for wearing adaptive devices
2. Eats independently; needs adaptive devices or assistance only for cutting food and/or pouring and/or opening containers
3. Eats and drinks independently; does not require assistance or adaptive devices
2. Bathing (soaping, washing, drying body and head, manipulating water tap). A-upper body; B-lower body
A. 0. Requires total assistance
1. Requires partial assistance
2. Washes independently with adaptive devices or in a specific setting (e.g., bars, chair)
3. Washes independently; does not require adaptive devices or specific setting (not customary for healthy people) (adss)
B. 0. Requires total assistance
1. Requires partial assistance
2. Washes independently with adaptive devices or in a specific setting (adss)
3. Washes independently; does not require adaptive devices (adss) or specific setting
3. Dressing (clothes, shoes, permanent orthoses: dressing, wearing, undressing). A-upper body; B-lower body
A. 0. Requires total assistance
1. Requires partial assistance with clothes without buttons, zippers or laces (cwobzl)
2. Independent with cwobzl; requires adaptive devices and/or specific settings (adss)
3. Independent with cwobzl; does not require adss; needs assistance or adss only for bzl
4. Dresses (any cloth) independently; does not require adaptive devices or specific setting
B. 0. Requires total assistance
1. Requires partial assistancewith clothes without buttons, zipps or laces (cwobzl)
2. Independent with cwobzl; requires adaptive devices and/or specific settings (adss)
3. Independent with cwobzl without adss; needs assistance or adss only for bzl
4. Dresses (any cloth) independently; does not require adaptive devices or specific setting
4. Grooming (washing hands and face, brushing teeth, combing hair, shaving, applying makeup)
0. Requires total assistance
1. Requires partial assistance
2. Grooms independently with adaptive devices
3. Grooms independently without adaptive devices
SUBTOTAL (0-20)

呼吸·括約筋機能:40点

5. Respiration	
0. Requires tracheal tube (TT) and permanent or intermittent assisted ventilation (IAV)	
2. Breathes independently with TT; requires oxygen, much assistance in coughing or TT mar	•
4. Breathes independently with TT; requires little assistance in coughing or TT management	
6. Breathes independently without TT; requires oxygen, much assistance in coughing, a mask	k (e.g., peep) or IAV (bipap)
8. Breathes independently without TT; requires little assistance or stimulation for coughing	
10. Breathes independently without assistance or device	
6. Sphincter Management - Bladder	
0. Indwelling catheter	
3. Residual urine volume (RUV) > 100cc; no regular catheterization or assisted intermittent of	
6. RUV < 100cc or intermittent self-catheterization; needs assistance for applying drainage in	
9. Intermittent self-catheterization; uses external drainage instrument; does not need assistant	
11. Intermittent self-catheterization; continent between catheterizations; does not use external	drainage instrument
10 DITT 100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
15. RUV <100cc; continent; does not use external drainage instrument	
15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel	
15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements	
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 	s than twice a month)
15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements	s than twice a month)
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 8. Regular bowel movements, without assistance; rare accidents (less than twice a month) 	s than twice a month)
5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less	
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 8. Regular bowel movements, without assistance; rare accidents (less than twice a month) 10. Regular bowel movements, without assistance; no accidents 	
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 8. Regular bowel movements, without assistance; rare accidents (less than twice a month) 10. Regular bowel movements, without assistance; no accidents 8. Use of Toilet (perineal hygiene, adjustment of clothes before/after, use of napkins or diap 	
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 8. Regular bowel movements, without assistance; rare accidents (less than twice a month) 10. Regular bowel movements, without assistance; no accidents 8. Use of Toilet (perineal hygiene, adjustment of clothes before/after, use of napkins or diap 0. Requires total assistance 1. Requires partial assistance; does not clean self 	
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 8. Regular bowel movements, without assistance; rare accidents (less than twice a month) 10. Regular bowel movements, without assistance; no accidents 8. Use of Toilet (perineal hygiene, adjustment of clothes before/after, use of napkins or diap 0. Requires total assistance 	pers).
 15. RUV <100cc; continent; does not use external drainage instrument 7. Sphincter Management - Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less 8. Regular bowel movements, without assistance; rare accidents (less than twice a month) 10. Regular bowel movements, without assistance; no accidents 8. Use of Toilet (perineal hygiene, adjustment of clothes before/after, use of napkins or diap 0. Requires total assistance 1. Requires partial assistance; does not clean self 2. Requires partial assistance; cleans self independently 	pers).

移動機能:40点

Mobility (room and toilet)	DATE \ \ \ \ \ \ \ \ \
9. Mobility in Bed and Action to Prevent Pressure Sores	
0. Needs assistance in all activities: turning upper body in bed, turning lov	wer body in bed,
sitting up in bed, doing push-ups in wheelchair, with or without adaptive	ve devices, but not with electric aids
2. Performs one of the activities without assistance	
4. Performs two or three of the activities without assistance	
6. Performs all the bed mobility and pressure release activities independent	ntly
10. Transfers: bed-wheelchair (locking wheelchair, lifting footrests, re	emoving
and adjusting arm rests, transferring, lifting feet).	
Requires total assistance	
 Needs partial assistance and/or supervision, and/or adaptive devices (e. 	g., sliding board)
2. Independent (or does not require wheelchair)	
11. Transfers: wheelchair-toilet-tub (if uses toilet wheelchair: transfer	ers to
and from; if uses regular wheelchair: locking wheelchair, lifting footres	
removing and adjusting armrests, transferring, lifting feet)	
Requires total assistance	
1. Needs partial assistance and/or supervision, and/or adaptive devices (e.	g., grab-bars)
2. Independent (or does not require wheelchair)	
Mobility (indoors and outdoors, on even surface)	
12. Mobility Indoors	
0. Requires total assistance	
1. Needs electric wheelchair or partial assistance to operate manual wheel	Ichair
2. Moves independently in manual wheelchair	
3. Requires supervision while walking (with or without devices)	
4. Walks with a walking frame or crutches (swing)	
5. Walks with crutches or two canes (reciprocal walking)	
6. Walks with one cane	
7. Needs leg orthosis only	
0.337.11	

13. Mobility for Moderate Distances (10-100 meters)	
Requires total assistance	
 Needs electric wheelchair or partial assistance to operate manual wheelchair 	
Moves independently in manual wheelchair	
3. Requires supervision while walking (with or without devices)	
4. Walks with a walking frame or crutches (swing)	
5. Walks with crutches or two canes (reciprocal walking)	
6. Walks with one cane	
7. Needs leg orthosis only	
8. Walks without walking aids	
14. Mobility Outdoors (more than 100 meters)	
Requires total assistance	
 Needs electric wheelchair or partial assistance to operate manual wheelchair 	
Moves independently in manual wheelchair	
3. Requires supervision while walking (with or without devices)	
4. Walks with a walking frame or crutches (swing)	
5. Walks with crutches or two canes (reciprocal waking)	
6. Walks with one cane	
7. Needs leg orthosis only	
8. Walks without walking aids	
15. Stair Management	
Unable to ascend or descend stairs	
1. Ascends and descends at least 3 steps with support or supervision of another person	
2. Ascends and descends at least 3 steps with support of handrail and/or crutch or cane	
3. Ascends and descends at least 3 steps without any support or supervision	
16. Transfers: wheelchair-car (approaching car, locking wheelchair, removing arm-	
and footrests, transferring to and from car, bringing wheelchair into and out of car)	
Requires total assistance	
1. Needs partial assistance and/or supervision and/or adaptive devices	
2. Transfers independent; does not require adaptive devices (or does not require wheelchair)	
17. Transfers: ground-wheelchair	
0. Requires assistance	
1. Transfers independent with or without adaptive devices (or does not require wheelchair)	
SUBTOTAL (0-40)	
50210111 <u>2</u> (6 10)	الصالصالصالصا

Patient Name:	Affiliated with the Sackler Faculty Medical Director: Dr. Amiram Catz Tel: 972-9-7709090 F ID: Exal or each function in the adjacent square, below the date. DRD INDEPENDENCE MEASURE DATE tainers, pouring, bringing food to mouth, holding cup with flu	The form may be used for up to 6 examinations.) Version III, Sept 14, 2002 EXam 1 2 3 4 5 6 Sept 14, 2002	sitting up in bed, doing push- 2. Performs one of the activities 4. Performs two or three of the i 6. Performs all the bed mobility 10. Transfers: bed-wheelcha and adjusting arm rests, trans 0. Requires total assistance	n to Prevent Pressure Sores ties: turning upper body in bed, turning lower body i ups in wheelchair, with or without adaptive devices a without assistance activities without assistance and pressure release activities independently ir (locking wheelchair, lifting footrests, removing afterring, lifting feet). or supervision, and/or adaptive devices (e.g., sliding	
Eats independently; needs Eats and drinks independer Bathing (soaping, washing O. Requires total assistance Requires partial assistance Washes independently w	✓疾患特	中州			
Washes independently; d B. 0. Requires total assistance Requires partial assistance	∨ /大芯行				
Washes independently w Washes independently; d Dressing (clothes, shoes, r A. 0. Requires total assistance Requires partial assistance Independent with cwobzl Independent with cwobzl	く日本語	の妥当性	が報告さ	れてい	る
4. Dresses (any cloth) indep B. 0. Requires total assistance 1. Requires partial assistance				里用印	5, 2007
Independent with cwobz Independent with cwobz Dresses (any cloth) indep Grooming (washing hands)	VOEVO	-センタイ	/ 川 (古の手		
Requires total assistance Requires partial assistance Grooms independently with Grooms independently with					'00'0
Respiration and Sphinct 5. Respiration 0. Requires tracheal tube (TT)	ノ リハビ	リ充足度	の指標が	ある	
Requires trached tube (17) Breathes independently wit Breathes independently wit Breathes independently wit Breathes independently wit				Scivolett 2	5 2016
10. Breathes independently with 6. Sphincter Management 0. Indwelling catheter				OON OIOTE 5	J, 2010
3. Residual urine volume (RU 6. RUV < 100cc or intermitter 9. Intermittent self-catheteriza 11. Intermittent self-catheteriza					
13. RUV <100cc; needs only es 15. RUV <100cc; continent; do 7. Sphincter Management					
O. Irregular timing or very low S. Regular timing, but requires Regular bowel movements, 10. Regular bowel movements,	HOUR ASSISTANCE TO ACCIDENTS				
).	1. 1 ransters independent with o	r without adaptive devices (or does not require wher	AL (0-40)
2. Requires partial assistance; cle				TOTAL SCIM SCORE (0-100)

SCIM 95: SCIM IIIの95パーセンタイル値

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SCIM 95 = 26.0
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- $-(0.00427\times AMS^2)+(1.236\times AMS)$
- (0.127×Age)
- -3.7×Gender

X

AMS: ASIA Motor Scale

Gender: 女=1, 男=0

SCI-ARMI: Spinal Cord Injury Ability Realization Measurement Index

リハビリテーション充足度の目安

$$\frac{\text{SCI-ARMI} = \frac{100 \times \text{SCIMob}}{\text{SCIM95}}$$

|* SCIMob: SCIMの実測値

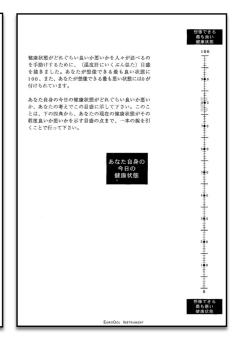
患者を評価する@ICU

候補

✓ QOL関連
• SF-36v2
• EQ-5D
EQ-5D

✓ ADL関連
• FIM
• SCIM III

以下のそれぞれの項目の一つの凹角に (このように図) 印 健康状態を最も良く表している記述を示して下さい。	をつけて、お	らなた自身の今日の
移動の程度 私は歩き回るのに問題はない 私は歩き回るのにいくらか問題がある 私はベッド(床)に寝たきりである		
身の回りの管理 私は身の回りの管理に問題はない 私は洗面や着替えを自分でするのにいくらか問題がある 私は洗面や着替えを自分でできない		
ふだんの活動 (例:仕事、触強、家族・余暇活動) 私はふだんの活動を行うのに問題はない 私はふだんの活動を行うのにいくらか問題がある 私はふだんの活動を行うことができない		
痛み/不快感 私は痒みや不快感はない 私は中程度の痛みや不快感がある 私はひどい痛みや不快感がある		
不安/ふさぎ込み 私は不安でもふさぎ込んでもいない 私は中程度に不安めるいはふさぎ込んでいる 私はひどく不安あるいはふさぎ込んでいる		
過去12カ月間にわたる自分の一般的な健康水準と比べて、 私の今日の健康状態は、		
より良い ほとんど同じ より悪い		ーつの 四角に 印をつけて下さい



	LOEWENSTEIN HOSPITAL B Affiliated with the Sackler Faculty of V, Medical Director: Dr. Amiram Catz. Tel 972-9-778900 Fe	of Medicine, Tel-Aviv University s: 972-9-778998 e-mail: amiramo@ciali
773 Patient Name	Exam to for each function in the adjacent square, below the date. The	iner Name:
(Enter the seco		be form may be used for up to 6 exa Version III, Sept 14,
SCINI-SPINAL	CORD INDEPENDENCE MEASURE	Elimi 2 3 4 3 4
	DATE containers, pouring, bringing food to mouth, holding cup with fluid	
Needs parenteral, gastrosta Needs partial assistance for Eats independently; needs	ery, or fully assisted oral feeding reating and/or drinking, or for wearing adaptive devices adaptive devices or assistance only for cutting feed and/or pouring	
	rly; does not require assistance or adaptive devices , drying body and head, manipulating water tap). A-upper body:	Balmare body
A. O. Requires total assistance		
1. Requires portial assistan-	o ith adaptive devices or in a specific setting (e.g., burs, chair)	
Washes independently w Weshes independently: 4	ith adaptive devices or in a specific sotting (e.g., bors, chair) ises not require adaptive devices or specific setting (not customary	for healthy neonly) (adju)
B. 0. Requires total assistance		
Requires partial assistant Worker independently or	e ith adaptive devices or in a specific setting (adm)	
	nn scaperic devices or in a specific sering (sess) bes not require adaptive devices (adm) or specific setting	
3. Dressing (clothes, shoes,	emanest orfuses: dressing, wearing, undressing). A-upper bad	ly; B-lower body
A. O. Requires total assistance	o with clothes without buttons, zippors or laces (cwohel)	
Requires partial assurant Independent with exobe	c with existes without flutton, appear or meas (cwees) ; requires adaptive devices and/or specific settings (adss)	
3. Independent with cwoke	does not require ades; needs assistance or ades only for bel	
 Dresses (any cloth) indep Requires total assistance 	sendently; does not require adaptive devices or specific setting	
	ewith elethes without buttons, zigns or lases (ewohel)	
2. Inferendent with ranks	receipts adaptive devices and/or specific settines (ada).	
3. Independent with ewobe	without adus; needs assistance or adus only for hell endently, does not require adaptive devices or specific setting	
	enactity, uses not require adaptive devices or specific setting and face, brushing tooth, combine hair, shaving, ambying makeuni	
9. Requires total assistance	an ian, reasing and control and raining, applied manage	
1. Requires partial assistance		
 Grooms independently wit Grooms independently wit 		
	SUBTOTAL (8-26)	
Respiration and Sphine	er Management	
5. Respiration	and nermanent or intermittent assisted ventilation (IAV)	
	i and permanent or information assessed ventilation (LAV) h TT; requires enggen, much assistance in coughing or TT manager	ment .
4. Breathes independently wit	TT; requires little assistance in coughing or TT management	
6. Breathes independently wit	bout TT; requires exygen, much assistance in coughing, a mask (e. bout TT; requires little assistance or stimulation for coughing	g., peep) or IAV (bipap)
8. Breathes independently wit 10. Breathes independently wit	near 11, requires more encountered of SUSBARROO for conglising bost assistance or device	
i. Sphincter Management		
0. Indvelling catheter 7. Residual estero cohere (RE)	V) > 100cc; so regular catheterization or assisted intermittent cathe	-
6. RUV < 100cc or internitte	 v) > 100cc; to regular customerization or assume intermetent custom information mode, assistance for amplying drainage instru 	DEE.
9. Intermittent self-cutheterin	tion; uses external drainage instrument; does not need assistance fo	r applying
Intermittent self-catheterin REV catheterin	tion; continent between catheterizations; does not use external drait sternal urine-drainage; no assistance is required for drainage	nega instrument
5. RUV <100cc; continues; do	es not use external drainage instrument	
. Sphincter Management	- Bowel	
0. Imagalar timing or very low	frequency (loss than once in 3-days) of bowel movements	
5. Regular tening, but require 8. Regular board movements.	assistance (e.g., for applying suppository); rare accidents (loss that without assistance; rare accidents (less than twice a month)	n rence a mome)
10. Regalar bowel movements.	without assistance, no accidents (sen than twice a monta) without assistance, no accidents	
t. Use of Toilet (portsed by	sens, adjustment of clothes before/after, use of napkins or dispors).	
0. Requires total assistance		
1. Requires partial assistance		
 Requires partial assistance, Uses toilet independently in 	cleans self independently all tasks but needs adaptive devices or special setting (c.e., ban)	
	loes not require adaptive devices or special setting)	
	SURTOTAL (0-40)	

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Ascends and descends at least 3 steps without any support or supervision. 16. Transfers: wheelchair-car (approaching our, locking wheelchair, removing armand flootrests, transfering to and from our, bringing wheelchair into and out of our). 10. Requires total assistance.	
 Transfers: wheelchair-car (approaching car, locking wheelchair, removing arms and footrests, transferring to and from car, bringing wheelchair into and out of car) Requires total assistance 	
and footrests, transferring to and from car, bringing wheelchair into and out of car) (). Requires total assistance	
Transfers independent; does not require adaptive devices (or does not require wheelchair)	
17. Transfers: ground-wheelchair	سسلل
Requires assistance Transfers independent with or without adaptive devices (or does not require wheelchair)	
1. Limites integerated with or without mapure devices (or does not require without at 40). SUBTOTAL (0.40).	
TOTAL SCIM SCORE (0-100)	
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Future

Exoskeletonの導入





VRの導入





VR with Exoskeleton



