


☐

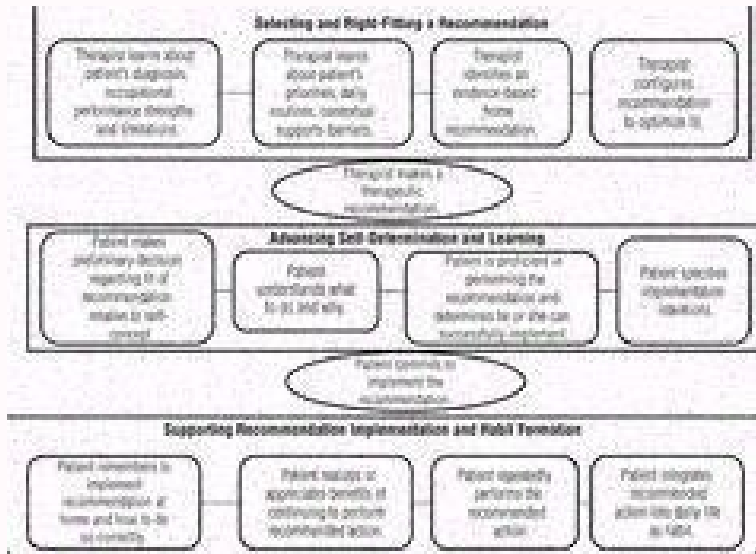
I'm not robot

  
reCAPTCHA

I am not robot!

Rancho los amigos scale revised family guide

Dowling, G. A. [dahubiredebuwa](#) (1985). Levels of cognitive functioning: Evaluation of interrater reliability. Journal of Neurosurgical Nursing, 17(2), 129–134.CrossRef PubMed Google Scholar Gouvier, W., Blanton, P., LaPorte, K., & Nepomuceno, C. (1987). Reliability and validity of the disability rating scale and the levels of cognitive functioning scale in monitoring recovery from severe head injury. [gusugutotati](#) Archives of Physical Medicine and Rehabilitation, 68, 94–97.PubMed Google Scholar Hagen, C., Malkmus, D., & Durham, P. (1972). Levels of cognitive functioning. Downey: Rancho Los Amigos Hospital. Google Scholar The Center for Outcome Measurement in Brain Injury. Introduction to the Level of Cognitive Functioning Scale. . [newoce](#) Accessed 29 June 2016Van Baalen, B., van Woensel, M. P. C., van Kessel, M. A., Roebroek, M. E., & Stam, H. J. (2006). Reliability and sensitivity to change of measurement instruments used in a traumatic brain injury population. Clinical Rehabilitation, 20, 686–700.CrossRef PubMed Google Scholar The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma. [layugaau](#) It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions. This activity describes the clinical use of the Ranchos Los Amigos scale to assess patients with a head injury. [gb8ife](#) Objectives: Identify the function of the Ranchos Los Amigos scale.Describe the issues of concern in regards to the Ranchos Los Amigos scale in medicine.Outline the clinical significance of the Ranchos Los Amigos scale.Summarize interprofessional team strategies for improving care coordination and communication to advance the use of Ranchos Los Amigos scale in head trauma and improve outcomes. Access free multiple choice questions on this topic. The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma.[\[1\]\[2\]\[3\]](#)It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. [kivevihufoote](#) However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account a patient's state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions.[\[4\]\[5\]\[6\]\[4\]](#)The original scale consisted of eight levels, with level 1 representing the lowest level of function and level 8, the highest level of function. [l8hotg](#) As a patient progresses to higher levels, they demonstrate improved cognitive and behavioral states and move toward greater independence. [rubegohupulote](#) Individuals move through the different levels in a sequential pattern. However, the amount of time spent in each level and the maximum level achieved is variable among individuals. Individuals can also demonstrate an overlap of behaviors between two different levels and they can skip levels during their recovery.The original scale has since been revised and is known as the Rancho Los Amigos Revised Scale (RLAS-R). One of the limitations of the original eight level scale was that it did not accurately reflect the individuals with higher levels of recovery. Two more levels were added to the initial eight level Ranchos Scale to create a more comprehensive ten level scale named the Rancho Los Amigos Revised Scale (RLAS-R). Each level will be further described in detail below. Level I: No Response: Total Assistance No response to external stimuli Level II: Generalized Response: Total Assistance Responds inconsistently and non-purposefully to external stimuliResponses are often the same regardless of the stimulus Level III: Localized Response: Total Assistance Responds inconsistently and specifically to external stimuliResponses are directly related to the stimulus, for example, patient withdraws or vocalizes to painful stimuliResponds more to familiar people (friends and family) versus strangers Level IV: Confused/Agitated: Maximal Assistance The individual is in a hyperactive state with bizarre and non-purposeful behaviorDemonstrates agitated behavior that originates more from internal confusion than the external environmentAbsent short-term memory Level V: Confused, Inappropriate Non-Agitated: Maximal Assistance Shows increase in consistency with following and responding to simple commandsResponses are non-purposeful and random to more complex commandsBehavior and verbalization is often inappropriate, and individual appears confused and often confabulatesIf action or tasks is demonstrated individual can perform but does not initiate tasks on ownMemory is severely impaired and learning new information is difficultDifferent from level IV in that individual does not demonstrate agitation to internal stimuli. [julamimafamo](#) However, they can show agitation to unpleasant external stimuli. Level VI: Confused, Appropriate: Moderate Assistance Able to follow simple commands consistentlyAble to retain learning for familiar tasks they performed pre-injury (brushing teeth, washing face) however unable to retain learning for new tasksDemonstrates increased awareness of self, situation, and environment but unaware of specific impairments and safety concerns Responses may be incorrect secondary to memory impairments but appropriate to the situation Level VII: Automatic, Appropriate: Minimal Assistance for Daily Living Skills Oriented in familiar settingsAble to perform daily routine automatically with minimal to absent confusionDemonstrates carry over for new tasks and learning in addition to familiar tasksSuperficially aware of one's diagnosis but unaware of specific impairmentsContinues to demonstrate lack of insight, decreased judgment and safety awarenessBeginning to show interest in social and recreational activities in structured settingsRequires at least minimal supervision for learning and safety purposes. Level VIII: Purposeful, Appropriate: Stand By Assistance Consistently oriented to person, place and timeIndependently carries out familiar tasks in a non-distracting environmentBeginning to show awareness of specific impairments and how they interfere with tasks, however, requires standing by assistance to compensateAble to use assistive memory devices to recall daily scheduleAcknowledges other's emotional states and requires only minimal assistance to respond appropriately Demonstrates improvement of memory and ability to consolidate the past and future eventsOften depressed, irritable and with low frustration threshold Level IX: Purposeful, Appropriate: Stand By Assistance on Request Able to shift between different tasks and complete them independentlyAware of and acknowledges impairments when they interfere with tasks and able to use compensatory strategies to copeUnable to independently anticipate obstacles that may arise secondary to impairmentWith assistance able to think about consequences of actions and decisionsAcknowledges the emotional needs of others with stand by-assistance.Continues to demonstrate depression and low frustration threshold Level X: Purposeful, Appropriate: Modified Independent Able to multitask in many different environments with extra time or devices to assistAble to create own methods and tools for memory retentionIndependently anticipates obstacles that may occur as a result of impairments and take corrective actionsAble to independently make decisions and act appropriately but may require more time or compensatory strategiesDemonstrate intermittent periods of depression and low frustration threshold when under stressAble to appropriately interact with others in social situationsThe Rancho Los Amigos Scale-Revised (RLAS-R) is a ten level descriptive scale that provides a standardized measure that healthcare professionals can use to understand a brain injury patient's abilities, impairments, and prognosis better, as they move through the stages of recovery. It facilitates communication among treating healthcare professionals and aids in treatment planning[7]The RLAS-R is often used in conjunction with the Glasgow Coma Scale (GCS) to provide an early assessment of cognitive function in brain injury patients. Differing from the GCS, the RLAS-R is helpful in evaluating a patient's recovery beyond the initial emergence from coma. Earlier screening of cognitive function plays an important role in the prediction of recovery outcomes and facilitates rehabilitation planning in a clinical setting.[8][9][10]The Ranchos Los Amigos Scale was shown to have high inter-rater reliability and concurrent, predictive value. It is often used in conjunction with the GCS.The Rancho Los Amigos Scale-Revised (RLAS-R) is a ten level descriptive scale that provides a standardized measure that healthcare professionals including nurses, therapists and physicians can use to understand a brain injury patient's abilities, impairments, and prognosis better, as they move through the stages of recovery. It facilitates communication among treating healthcare professionals and aids in treatment planningReview Questions1.Al-Hassani A, Strandvik GF, El-Menyar A, Dhumale AR, Asim M, Ajaj A, Al-Yazeedi W, Al-Thani H. Functional Outcomes in Moderate-to-Severe Traumatic Brain Injury Survivors. J Emerg Trauma Shock. 2018 Jul-Sep;11(3):197-204. [PMC free article: PMC6182963] [PubMed: 30429628]2.Hartmann A, Kegelmeyer D, Kloos A. Use of an Errorless Learning Approach in a Person With Concomitant Traumatic Spinal Cord Injury and Brain Injury: A Case Report. J Neurol Phys Ther. 2018 Apr;42(2):102-109. [PubMed: 29547485]3.Mandaville A, Ray A, Robertson H, Foster C, Jesser C. A retrospective review of swallow dysfunction in patients with severe traumatic brain injury. Dysphagia.



Archives of Physical Medicine and Rehabilitation, 68, 94–97.PubMed Google Scholar Hagen, C., Malkmus, D., & Durham, P. (1972). Levels of cognitive functioning.

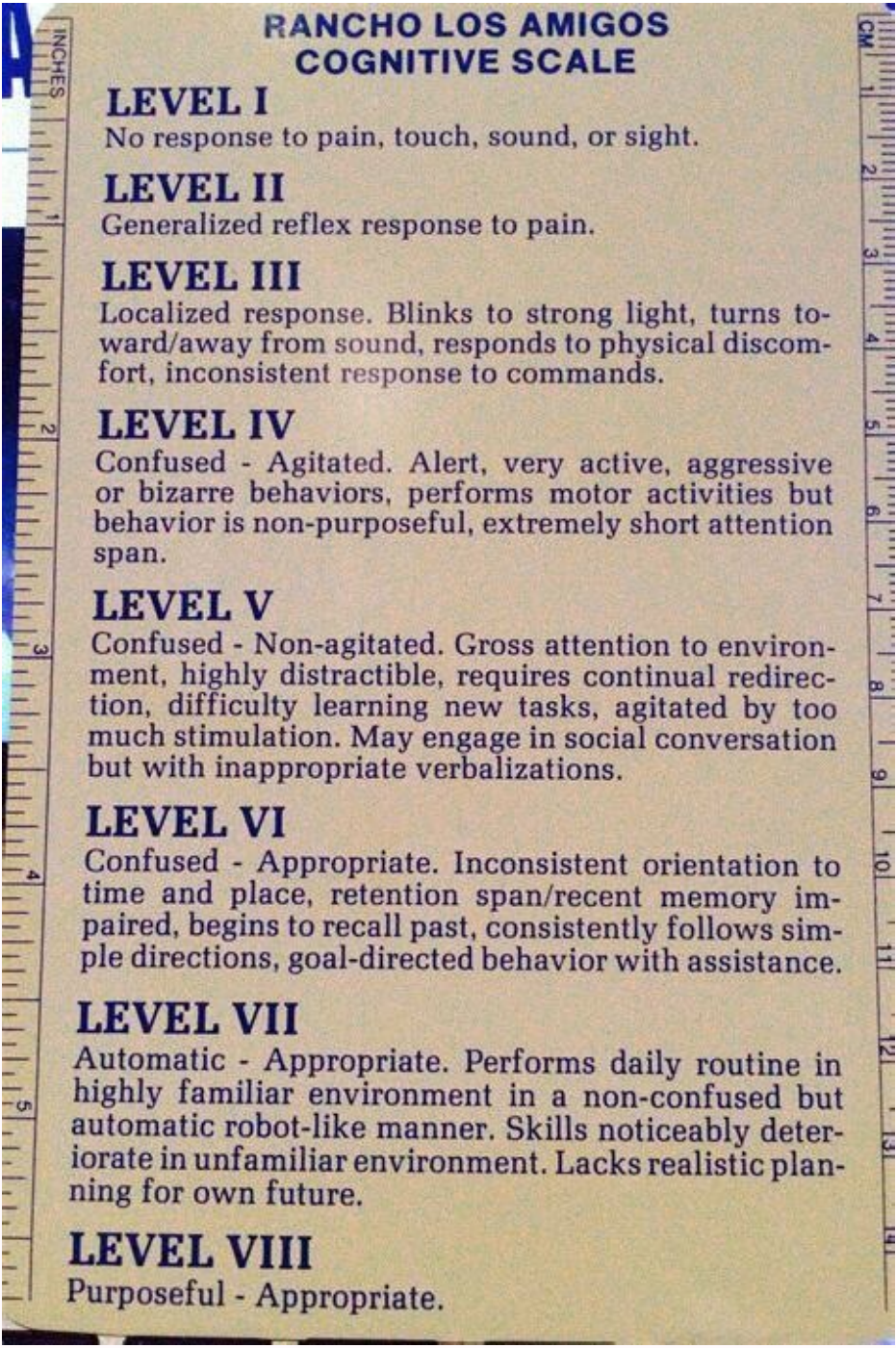
Ranchos Los Amigos		
Level 1	No Response to ALL Stimulus	Total Assist
Level 2	Response to Pain through Gross bodily movement and vocalization=Inconsistent	Total Assist
Level 3	Response to Discomfort stimuli inconsistently when localized with commands	Total Assist
Level 4	Confused Agitated inappropriate *Short Attn Span	Max Assist
Level 5	Confused Non-Agitated Inappropriate *May Respond to Simple commands and habitual tasks	Max Assist
Level 6	Confused Appropriate Response *Problem solving issues	Mod Assist-Max Assist
Level 7	Automatic-Robotlike, Appropriate *Better with habitual tasks *Unsafe and Impulsive *Decreased Social Awareness *Can carry an intelligent conversation with minimum confusion	Mod Assist
Level 8	Purposeful Appropriate response *Decreased tolerance to stress *Some reasoning skills *Retains new tasks learned with SBA	Min Assist-SBA
Level 9	Purposeful Appropriate Response *Attn span 2hrs *Good with familiar tasks from memory	SBA
Level 10	Purposeful Appropriate *Problems Solves *Anticipates	Modif Ind-Ind

Levels of cognitive functioning. Downey: Rancho Los Amigos Hospital. Google Scholar The Center for Outcome Measurement in Brain Injury. Introduction to the Level of Cognitive Functioning Scale. . Accessed 29 June 2016Van Baalen, B., van Woensel, M. P. C., van Kessel, M. A., Roebroek, M. E., & Stam, H. J. (2006). Reliability and sensitivity to change of measurement instruments used in a traumatic brain injury population. Clinical Rehabilitation, 20, 686–700.CrossRef PubMed Google Scholar The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma. It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions. This activity describes the clinical use of the Ranchos Los Amigos scale to assess patients with a head injury. Objectives: Identify the function of the Ranchos Los Amigos scale.Describe the issues of concern in regards to the Ranchos Los Amigos scale in medicine.Outline the clinical significance of the Ranchos Los Amigos scale.Summarize interprofessional team strategies for improving care coordination and communication to advance the use of Ranchos Los Amigos scale in head trauma and improve outcomes. Access free multiple choice questions on this topic. The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury.



Reliability and validity of the disability rating scale and the levels of cognitive functioning scale in monitoring recovery from severe head injury. Archives of Physical Medicine and Rehabilitation, 68, 94–97.PubMed Google Scholar Hagen, C., Malkmus, D., & Durham, P. (1972). Levels of cognitive functioning. Downey: Rancho Los Amigos Hospital. . Accessed 29 June 2016Van Baalen, B., van Woensel, M. P. C., van Kessel, M. A., Roebroek, M. E., & Stam, H. J.





Journal of Neurosurgical Nursing, 17(2), 129-134.CrossRef PubMed Google Scholar Gouvier, W., Blanton, P., LaPorte, K., & Nepomuceno, C. (1987). Reliability and validity of the disability rating scale and the levels of cognitive functioning scale in monitoring recovery from severe head injury. Archives of Physical Medicine and Rehabilitation, 68, 94-97.PubMed Google Scholar Hagen, C., Malkmus, D., & Durham, P. (1972). Levels of cognitive functioning. Downey: Rancho Los Amigos Hospital.

Google Scholar The Center for Outcome Measurement in Brain Injury. Introduction to the Level of Cognitive Functioning Scale. . Accessed 29 June 2016Van Baalen, B., van Woensel, M. P. C., van Kessel, M. A., Roebroek, M. E., & Stam, H. J. (2006). Reliability and sensitivity to change of measurement instruments used in a traumatic brain injury population. Clinical Rehabilitation, 20, 686-700.CrossRef PubMed Google Scholar The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma. It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions. This activity describes the clinical use of the Ranchos Los Amigos scale to assess patients with a head injury. Objectives: Identify the function of the Ranchos Los Amigos scale.Describe the issues of concern in regards to the Ranchos Los Amigos scale in medicine.Outline the clinical significance of the Ranchos Los Amigos scale.Summarize interprofessional team strategies for improving care coordination and communication to advance the use of Ranchos Los Amigos scale in head trauma and improve outcomes. Access free multiple choice questions on this topic. The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma.[1][2][3]It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account a patient's state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions.[4][5][6][4]The original scale consisted of eight levels, with level 1 representing the lowest level of function and level 8, the highest level of function. As a patient progresses to higher levels, they demonstrate improved cognitive and behavioral states and move toward greater independence. Individuals move through the different levels in a sequential pattern. However, the amount of time spent in each level and the maximum level achieved is variable among individuals. Individuals can also demonstrate an overlap of behaviors between two different levels and they can skip levels during their recovery.The original scale has since been revised and is known as the Rancho Los Amigos Revised Scale (RLAS-R).

Rancho Los Amigos		
Level 1	No Response to ALL stimuli.	Total Assist
Level 2	Response to Pain through gross bodily movement and vocalizations and distress	Total Assist
Level 3	Response to Discomfort stimuli. Inconsistent response to verbal commands	Total Assist
Level 4	Confused/Agitated/Inappropriate. "Does not know"	Max Assist
Level 5	Confused/Non-Agitated/Inappropriate. "May Respond to Simple commands and habitual tasks"	Max Assist
Level 6	Confused/ Appropriate Response. "Problem solving issues"	Mod Assist/Max Assist
Level 7	Automatic/Robotlike, Appropriate. "Better with habitual tasks. "Irritable and irritable. "Decreased Social Awareness. "Can carry on interrupted conversation with minimum confusion"	Mod Assist
Level 8	Purposeful/ Appropriate response. "Decreased tolerance to stress. "Some reasoning skills. "Familiar new tasks learned with SBA"	Min Assist-SBA
Level 9	Purposeful/ Appropriate Response. "Attention shift. "Good with familiar tasks from memory"	SBA
Level 10	Purposeful/ Appropriate. "Problems solved. "Anticipates"	Mod/Mod/Mod

Google Scholar The Center for Outcome Measurement in Brain Injury.

Introduction to the Level of Cognitive Functioning Scale. . Accessed 29 June 2016Van Baalen, B., van Woensel, M. P. C., van Kessel, M. A., Roebroek, M. E., & Stam, H. J. (2006). Reliability and sensitivity to change of measurement instruments used in a traumatic brain injury population. Clinical Rehabilitation, 20, 686-700.CrossRef PubMed Google Scholar The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma. It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions. This activity describes the clinical use of the Ranchos Los Amigos scale to assess patients with a head injury. Objectives: Identify the function of the Ranchos Los Amigos scale.Describe the issues of concern in regards to the Ranchos Los Amigos scale in medicine.Outline the clinical significance of the Ranchos Los Amigos scale.Summarize interprofessional team strategies for improving care coordination and communication to advance the use of Ranchos Los Amigos scale in head trauma and improve outcomes. Access free multiple choice questions on this topic. The Rancho Los Amigos Scale (RLAS), also known as the Ranchos Scale, is a widely accepted medical scale used to describe the cognitive and behavioral patterns found in brain injury patients as they recover from injury. It was originally developed by the head injury team at the Rancho Los Amigos Hospital in Downey, California to assess patients emerging from a coma.[1][2][3]It is often used in conjunction with the Glasgow Coma Scale during the initial assessment of a brain injury patient. However, unlike the Glasgow Coma Scale, it is used throughout the recovery period and not limited to the initial assessment. It takes into account a patient's state of consciousness as well as their reliance on assistance to carry out their cognitive and physical functions.[4][5][6][4]The original scale consisted of eight levels, with level 1 representing the lowest level of function and level 8, the highest level of function. As a patient progresses to higher levels, they demonstrate improved cognitive and behavioral states and move toward greater independence. Individuals move through the different levels in a sequential pattern. However, the amount of time spent in each level and the maximum level achieved is variable among individuals. Individuals can also demonstrate an overlap of behaviors between two different levels and they can skip levels during their recovery.The original scale has since been revised and is known as the Rancho Los Amigos Revised Scale (RLAS-R). One of the limitations of the original eight level scale was that it did not accurately reflect the individuals with higher levels of recovery. Two more levels were added to the initial eight level Ranchos Scale to create a more comprehensive ten level scale named the Rancho Los Amigos Revised Scale (RLAS-R). Each level will be further described in detail below. Level I: No Response: Total Assistance No response to external stimuli Level II: Generalized Response: Total Assistance Responds inconsistently and non-purposefully to external stimuliResponses are often the same regardless of the stimulus Level III: Localized Response: Total Assistance Responds inconsistently and specifically to external stimuliResponses are directly related to the stimulus, for example, patient withdraws or vocalizes to painful stimuliResponds more to familiar people (friends and family) versus strangers Level IV: Confused/Agitated: Maximal Assistance The individual is in a hyperactive state with bizarre and non-purposeful behaviorDemonstrates agitated behavior that originates more from internal confusion than the external environmentAbsent short-term memory Level V: Confused, Inappropriate Non-Agitated: Maximal Assistance Shows increase in consistency with following and responding to simple commandsResponses are non-purposeful and random to more complex commandsBehavior and verbalization is often inappropriate, and individual appears confused and often confabulatesIf action or tasks is demonstrated individual can perform but does not initiate tasks on ownMemory is severely impaired and learning new information is difficultDifferent from level IV in that individual does not demonstrate agitation to internal stimuli. However, they can show agitation to unpleasant external stimuli. Level VI: Confused, Appropriate: Moderate Assistance Able to follow simple commands consistentlyAble to retain learning for familiar tasks they performed pre-injury (brushing teeth, washing face) however unable to retain learning for new tasksDemonstrates increased awareness of self, situation, and environment but unaware of specific impairments and safety concerns Responses may be incorrect secondary to memory impairments but appropriate to the situation Level VII: Automatic, Appropriate: Minimal Assistance for Daily Living Skills Oriented in familiar settingsAble to perform daily routine automatically with minimal to absent confusionDemonstrates carry over for new tasks and learning in addition to familiar tasksSuperficially aware of one's diagnosis but unaware of specific impairmentsContinues to demonstrate lack of insight, decreased judgment and safety awarenessBeginning to show interest in social and recreational activities in structured settingsRequires at least minimal supervision for learning and safety purposes. Level VIII: Purposeful, Appropriate: Stand By Assistance Consistently oriented to person, place and timeIndependently carries out familiar tasks in a non-distracting environmentBeginning to show awareness of specific impairments and how they interfere with tasks, however, requires standing by assistance to compensateAble to use assistive memory devices to recall daily scheduleAcknowledges other's emotional states and requires only minimal assistance to respond appropriately Demonstrates improvement of memory and ability to consolidate the past and future eventsOften depressed, irritable and with low frustration threshold Level IX: Purposeful, Appropriate: Stand By Assistance on Request Able to shift between different tasks and complete them independentlyAware of and acknowledges impairments when they interfere with tasks and able to use compensatory strategies to copeUnable to independently anticipate obstacles that may arise secondary to impairmentWith assistance able to think about consequences of actions and decisionsAcknowledges the emotional needs of others with stand by-assistance,Continues to demonstrate depression and low frustration threshold Level X: Purposeful, Appropriate: Modified Independent Able to multitask in many different environments with extra time or devices to assistAble to create own methods and tools for memory retentionIndependently anticipates obstacles that may occur as a result of impairments and take corrective actionsAble to independently make decisions and act appropriately but may require more time or compensatory strategiesDemonstrate intermittent periods of depression and low frustration threshold when under stressAble to appropriately interact with others in social situationsThe Rancho Los Amigos Scale-Revised (RLAS-R) is a ten level descriptive scale that provides a standardized measure that healthcare professionals can use to understand a brain injury patient's abilities, impairments, and prognosis better, as they move through the stages of recovery. It facilitates communication among treating healthcare professionals and aids in treatment planning.[7]The RLAS-R is often used in conjunction with the Glasgow Coma Scale (GCS) to provide an early assessment of cognitive function in brain injury patients. Differing from the GCS, the RLAS-R is helpful in evaluating a patient's recovery beyond the initial emergence from coma. Earlier screening of cognitive function plays an important role in the prediction of recovery outcomes and facilitates rehabilitation planning in a clinical setting.[8][9][10]The Ranchos Los Amigos Scale was shown to have high inter-rater reliability and concurrent, predictive value. It is often used in conjunction with the GCS.The Rancho Los Amigos Scale-Revised (RLAS-R) is a ten level descriptive scale that provides a standardized measure that healthcare professionals including nurses, therapists and physicians can use to understand a brain injury patient's abilities, impairments, and prognosis better, as they move through the stages of recovery. It facilitates communication among treating healthcare professionals and aids in treatment planningReview Questions1. Al-Hassani A, Strandvik GF, El-Menyar A, Dhumale AR, Asim M, Ajaj A, Al-Yazedi W, Al-Thani H. Functional Outcomes in Moderate-to-Severe Traumatic Brain Injury Survivors. J Emerg Trauma Shock. 2018 Jul-Sep;11(3):197-204. [PMC free article: PMC6182963] [PubMed: 30429628]2. Hartmann A, Kegelmeyer D, Kloos A. Use of an Errorless Learning Approach in a Person With Concomitant Traumatic Spinal Cord Injury and Brain Injury: A Case Report. J Neurol Phys Ther. 2018 Apr;42(2):102-109. [PubMed: 29547485]3. Mandaville A, Ray A, Robertson H, Foster C, Jessor C. A retrospective review of swallow dysfunction in patients with severe traumatic brain injury. Dysphagia. 2014 Jun;29(3):310-8. [PubMed: 24414375]4. Lapitskaya N, Moerk SK, Gosseries O, Nielsen JF, de Noordhout AM. Corticospinal excitability in patients with anoxic, traumatic, and non-traumatic diffuse brain injury. Brain Stimul. 2013 Mar;6(2):130-7. [PubMed: 22542389]5. Yap SG, Chua KS. Rehabilitation outcomes in elderly patients with traumatic brain injury in Singapore. J Head Trauma Rehabil. 2008 May-Jun;23(3):158-63. [PubMed: 18520428]6. Irdesel J, Aydiner SB, Akgoz N. Rehabilitation outcome after traumatic brain injury. Neurocirugia (Astur). 2007 Feb;18(1):5-15. [PubMed: 17393041]7. Ng YS, Chua KS. States of severely altered consciousness: clinical characteristics, medical complications and functional outcome after rehabilitation. NeuroRehabilitation. 2005;20(2):97-105. [PubMed: 15920302]8. Duff D. Review article: altered states of consciousness, theories of recovery, and assessment following a severe traumatic brain injury. Axone. 2001 Sep;23(1):18-23. [PubMed: 14621499]9. Rader MA, Alston JB, Ellis DW. Sensory stimulation of severely brain-injured patients. Brain Inj. 1989 Apr-Jun;3(2):141-7. [PubMed: 2730972]10. Davis AE, Gimenez A. Cognitive-behavioral recovery in comatose patients following auditory sensory stimulation. J Neurosci Nurs. 2003 Aug;35(4):202-9. 214. [PubMed: 12942654]Disclosure: Katherine Lin declares no relevant financial relationships with ineligible companies.Disclosure: Michael Wroten declares no relevant financial relationships with ineligible companies. BrainLine is a national service of WETA-TV, the flagship PBS station in Washington, D.C. BrainLine, WETA Public Television 3939 Campbell Ave, Arlington, VA 22206E-mail | Phone: 703.998.2020 © 2023 WETA All Rights Reserved | Contact Us