CENTRO HOSPITALAR UNIVERSITÁRIO DE LISBOA CENTRAL

ESCOLA SUPERIOR DE TECNOLOGIA DA SAÚDE DE LISBOA
Instituto Politécnico de Lisboa

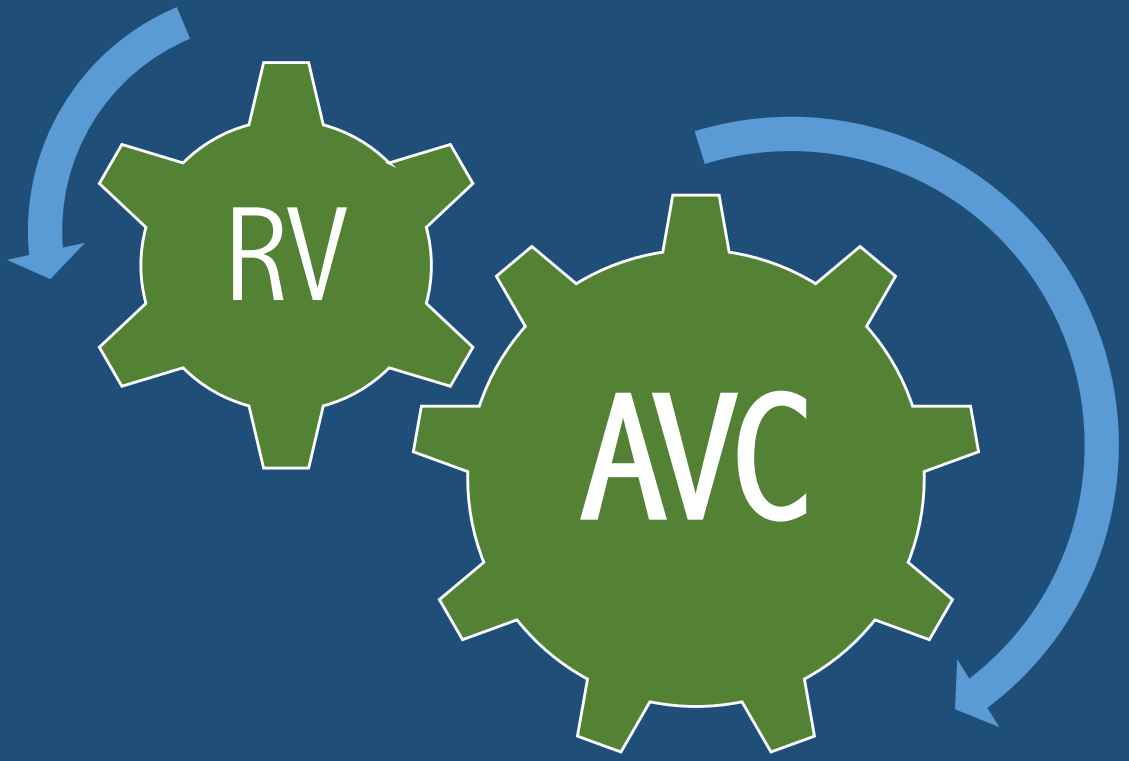
DA EVIDÊNCIA... À PRÁTICA
IV EDIÇÃO FÓRUM MOVIMENTO FISIO

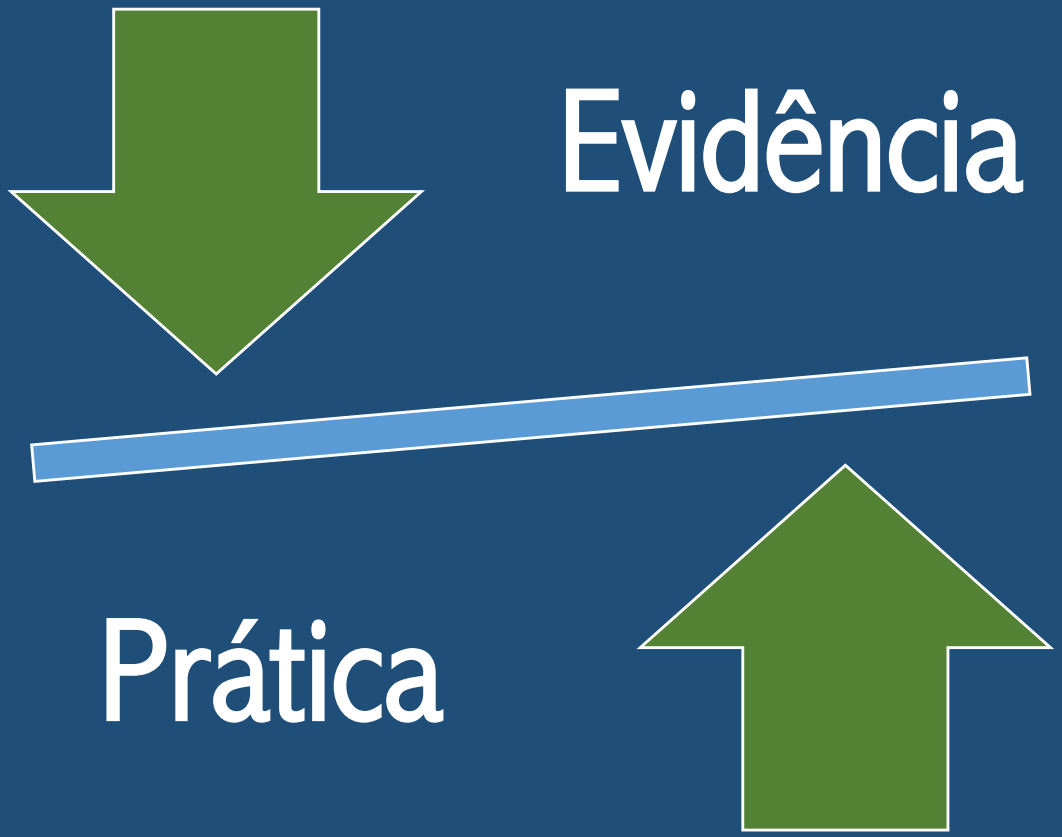
ACIDENTE VASCULAR CEREBRAL E REEDUCAÇÃO VESTIBULAR:

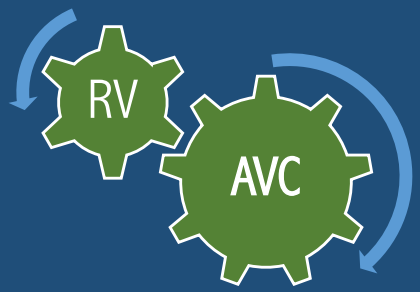
... DA EVIDÊNCIA... À PRÁTICA

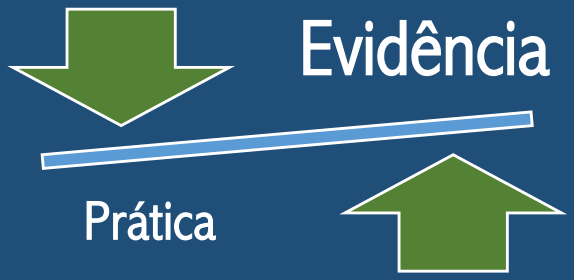
CARLA PIMENTA
Fisioterapeuta

23 de março de 2019


RV
AVC

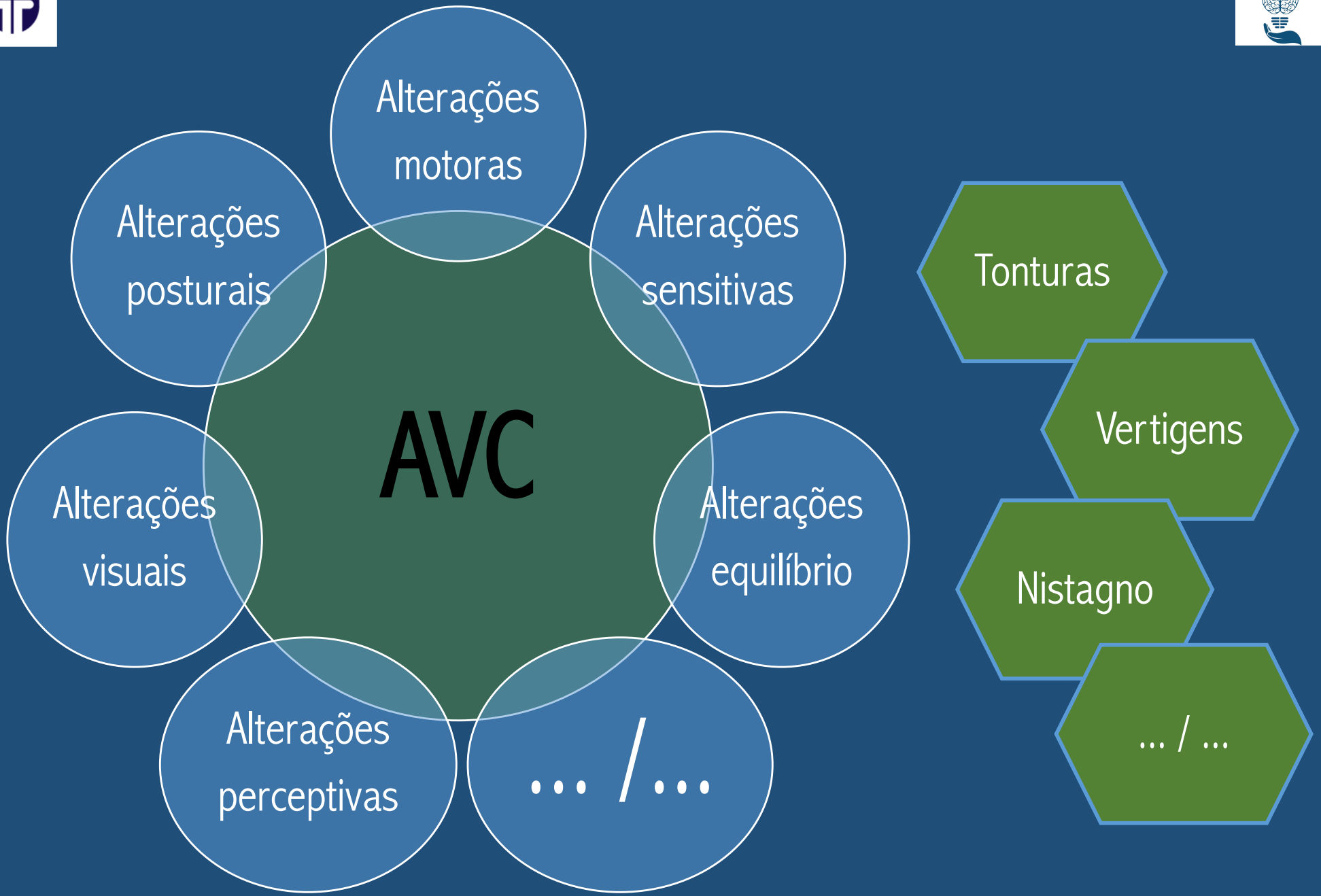

Evidência
Prática

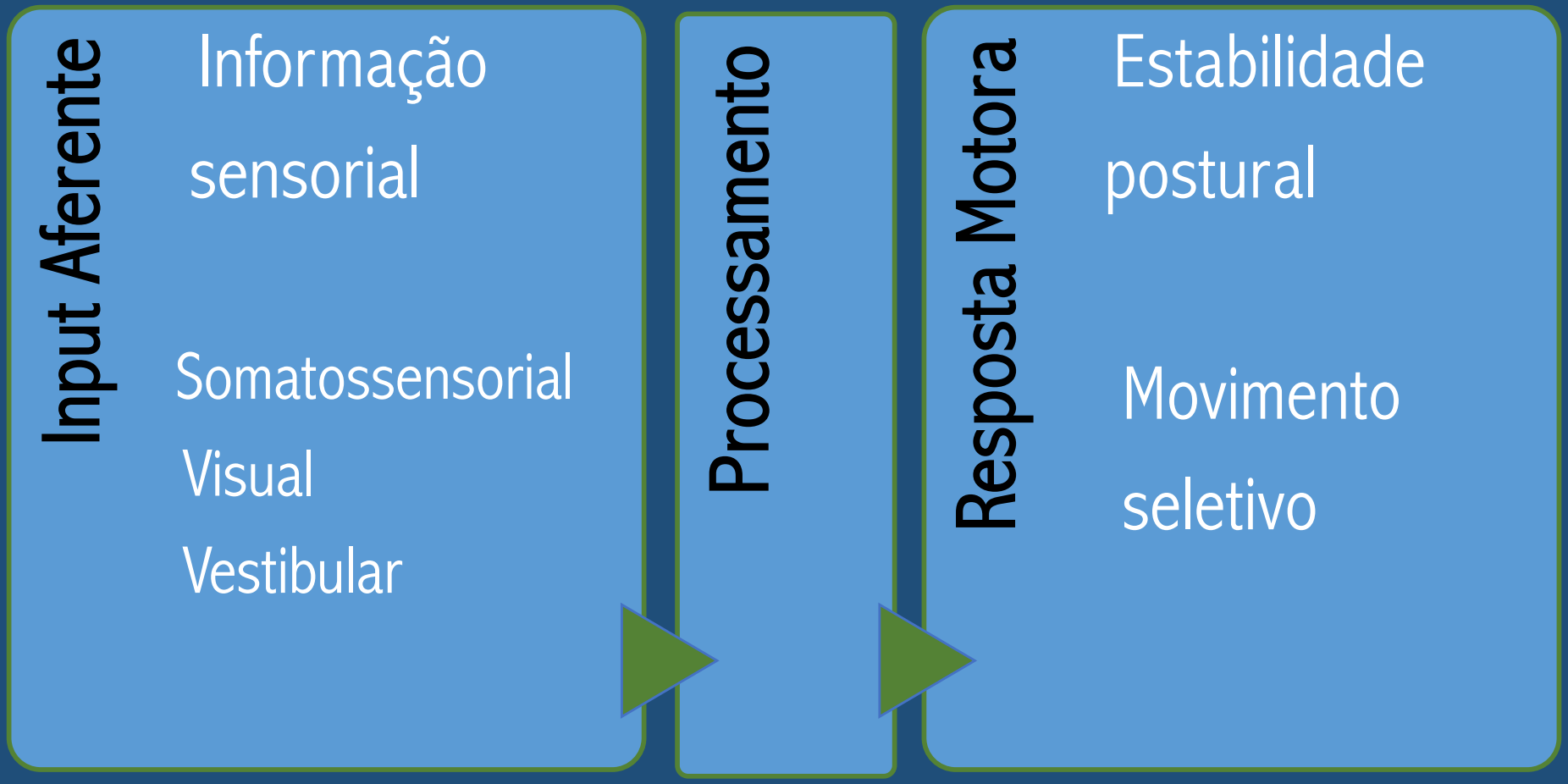




Os défices vestibulares centrais resultam de alterações no sistema vertebrobasilar (que incluí o tronco cerebral, o cerebelo, o lobo occipital, as artérias vertebrais e basilar) e podem ser causados por Acidente Vascular Cerebral.

Os défices vestibulares puros nos pacientes com AVC são raros mas existem frequentemente alterações resultantes da lesão cerebral que beneficiam da reeducação vestibular.


Alterações motoras
Alterações posturais
Alterações sensitivas
AVC
Alterações visuais
Alterações equilíbrio
Alterações perceptivas
... / ...
Tonturas
Vertigens
Nistagno
... / ...


Input Aferente
Informação sensorial
Somatossensorial
Visual
Vestibular
Processamento
Resposta Motora
Estabilidade postural
Movimento seletivo

Sistema vestibular

Estabilidade postural

Estabilidade visual

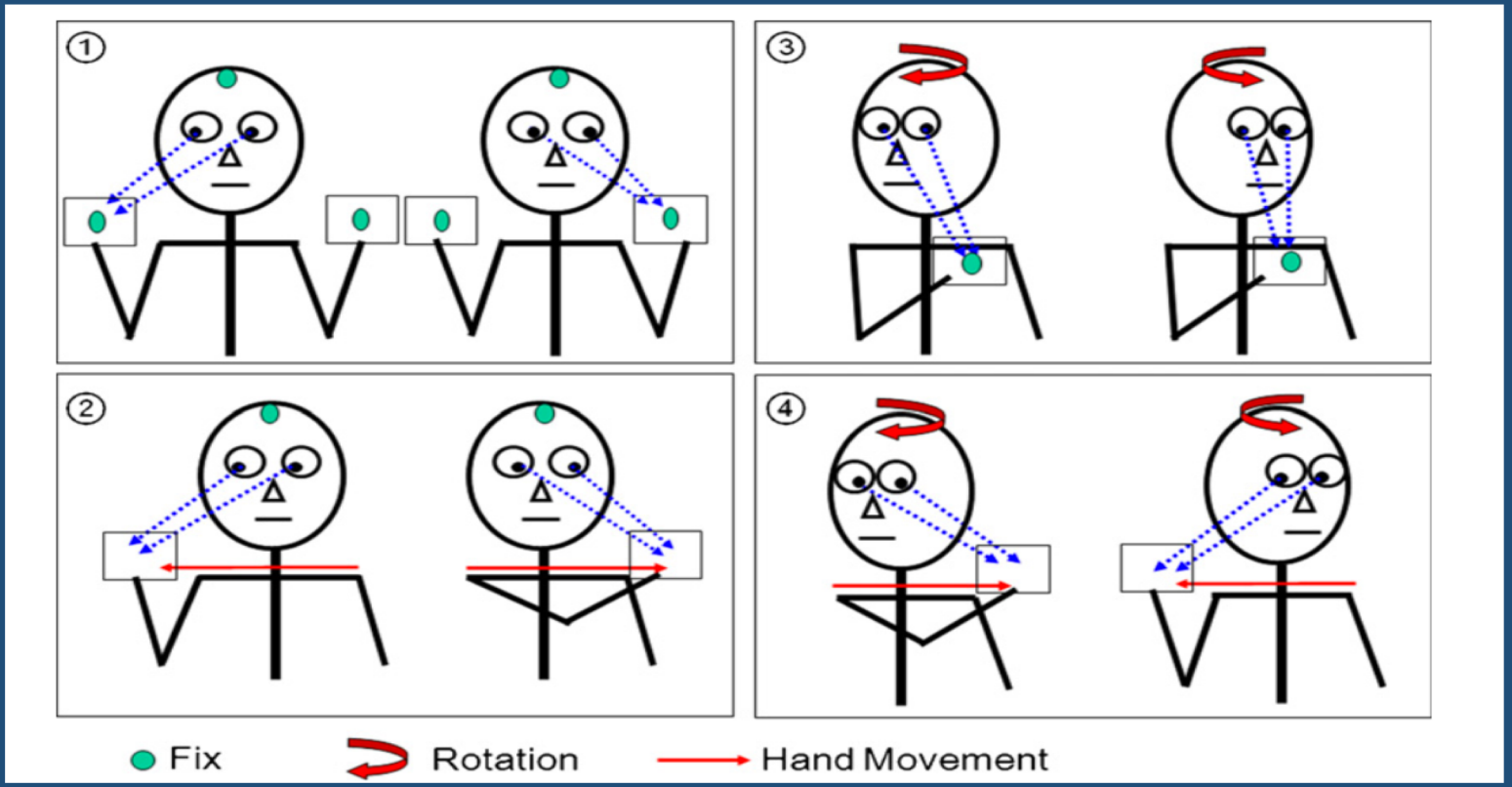
RVE

Reflexo vestíbulo espinhal

RVO

Reflexo vestíbulo ocular

Os exercícios de estabilização do olhar demostraram melhorias na estabilidade postural em adultos jovens e saudáveis.



Morimoto *et al* (2011). Effect of oculo-motor and gaze stability exercises on postural stability and dynamic visual acuity in healthy young adults. *Gait & Posture*, *33*, 600-603.

Neuropsychiatr Dis Treat. 2013;9:477-84. doi: 10.2147/NDT.S42426. Epub 2013 Apr 8.

Effects of primary caregiver participation in vestibular rehabilitation for unilateral neglect patients with right hemispheric stroke: a randomized controlled trial.

Dai CY[1], Huang YH, Chou LW, Wu SC, Wang RY, Lin LC.

Author information

Abstract

INTRODUCTION: The current study aims to investigate the effects of primary caregiver participation in vestibular rehabilitation (VR) on improving the measures of neglect, activities of daily living (ADL), balance, and falls of unilateral neglect (UN) patients.

METHODS: This study is a single-blind randomized controlled trial. Both experimental (n = 24) and control groups (n = 24) received conventional rehabilitation. The experimental group undertook VR for a month. During the first and second weeks, a registered nurse trained the experimental group in VR. The primary caregivers in the experimental group supervised and guided their patients in VR during the third and fourth weeks. The outcome measures were neglect, ADL, balance, and falls.

RESULTS: The two groups of UN patients showed a significant improvement in neglect, ADL, and balance over time. Based on the generalized estimating equations model, an interaction was observed between groups and times. Significant interactions were observed between the VR group at days 14 and 28 in the areas of neglect, ADL, and balance. No significant difference was observed between the two groups in the number of falls.

CONCLUSION: Neglect, ADL, and balance among UN patients with right hemispheric stroke can be improved through the participation of primary caregivers in VR. Trained informal caregivers were recommended to provide VR guidance and supervision to patients who suffer from UN.

KEYWORDS: balance; caregiver; falls; neglect; vestibular rehabilitation

J Vestib Res. 2013;23(4-5):259-67. doi: 10.3233/VES-130491.

Vestibular rehabilitation in acute central vestibulopathy: a randomized controlled trial.

Balci BD[1], Akdal G, Yaka E, Angin S.

Author information

Abstract

OBJECTIVE: To investigate the effects of two different rehabilitation programs in acute central vestibulopathy secondary to posterior circulation stroke.

METHOD: A prospective randomized controlled study was conducted on 25 patients with posterior circulation stroke. Patients were instructed in routine balance and mobility exercises during the acute hospitalization period. At discharge, patients were assigned to either a rehabilitation or home exercise group. The home exercise group was instructed to perform the same exercise program provided in the course of hospitalization period. The rehabilitation group was randomized into the visual feedback posturography training or vestibular rehabilitation group. The balance and gait performance were assessed with clinical and objective measurements before and after 6 weeks of training.

RESULTS: The balance and gait scores were significantly improved in both rehabilitation groups and in the home exercise group ($p < 0.05$), but no significant difference was found between the groups in terms of post-treatment values ($p > 0.05$).

CONCLUSION: The improvements of balance and gait function in rehabilitation groups did not differ from the home exercise group. Rehabilitation programs were equally effective to improve the recovery in acute central vestibulopathy.

KEYWORDS: Acute stroke; balance; posterior circulation; vestibular rehabilitation

Front Neurol. 2016 Sep 20;7:140. eCollection 2016.

A Cross-sectional Survey and Cross-sectional Clinical Trial to Determine the Prevalence and Management of Eye Movement Disorders and Vestibular Dysfunction in Post-Stroke Patients in the Sub-Acute Phase: Protocol.

van Wyk A[1], Eksteen CA[1], Becker PJ[2], Heinze BM[3].

Author information

Abstract

INTRODUCTION: Visual impairment, specifically eye movement disorders and vestibular dysfunction may have a negative influence on the functional recovery in post-stroke patients. This type of sensory dysfunction may further be associated with poor functional outcome in patients' post-stroke.

METHODS: In phase 1, a cross-sectional survey ($n = 100$) will be conducted to determine the prevalence of eye movement disorders and vestibular dysfunction in patients who sustained a stroke. A cross-sectional clinical trial ($n = 60$) will be conducted during phase 2 of the study to determine the effect of the combination of vestibular rehabilitation therapy (VRT) and visual scanning exercises (VSE) (experimental group) integrated with task-specific activities compared with the effect of task-specific activities as an intervention (control group) on patients who present with eye movement impairment and central vestibular dysfunction post-stroke. An audiologist will assess (a) visual acuity (static and dynamic), (b) nystagmus, (c) saccadic eye movements, (d) smooth pursuit eye movements, (e) vestibulo-ocular reflex, and (f) saccular, utricular, and vestibular nerve function. An independent physiotherapist will assess (1) cognitive function, (2) residual oculomotor visual performance, (3) visual-perceptual system, (4) functional balance, (5) gait, (6) functional ability, (7) presence of anxiety and/or depression, and (8) level of participation in physical activity.

ETHICS AND DISSEMINATION: Ethics approval has been obtained from the Ethics Committee of the Faculty of Health Sciences at the University of Pretoria (UP) (374/2015). The study will be submitted as fulfillment for the PhD degree at UP. Dissemination will include submission to peer-reviewed professional journals and presentation at congresses. Training of rehabilitation team members on the integration of VSE and VRT into task-specific activities in rehabilitation will be done if the outcome of the experimental group's functional performance is clinically and statistically significantly better than the control group on the Barthel Index.

TRIAL REGISTRATION: Pan African Clinical Trials Registry (PACTR201509001223262).

KEYWORDS: eye movement disorders; physiotherapy; prevalence; rehabilitation; stroke; vestibular dysfunction; visual impairment

Int J Rehabil Res. 2017 Sep;40(3):240-245. doi: 10.1097/MRR.0000000000000234.

Effects of vestibular rehabilitation on gait performance in poststroke patients: a pilot randomized controlled trial.

Mitsutake T[1], Sakamoto M, Ueta K, Oka S, Horikawa E.

Author information

Abstract

The effects of vestibular rehabilitation on poststroke patients are unknown. This study aimed to investigate whether or not vestibular rehabilitation would improve both the vestibulo-ocular reflex and gait performance of patients with poststroke hemiparesis. Twenty-eight patients with stroke were assigned randomly to either an experimental group (N=14) or a control group (N=14). The experimental group performed the conventional physical therapy for 40 min and vestibular rehabilitation for 20 min, as a 60 min session, during the first 3 weeks and then completed only the conventional intervention for 60 min for the following 3 weeks. The control group performed only the 60 min conventional physical therapy for 6 weeks. Both groups were measured using the gaze stabilization test, the 10 m walking test, the timed up and go test, and the dynamic gait index. Patients were assessed at baseline, and at 3 and 6 weeks. Although the control group showed no significant difference in any outcome measures, the experimental group showed an improvement in gaze stabilization test scoring, which increased significantly after 3 weeks compared with the baseline (P=0.030). The dynamic gait index was also significantly increased after 3 and 6 weeks compared with the baseline (P=0.049 and 0.024, respectively). This study indicated that vestibular rehabilitation might improve poststroke patients' vestibulo-ocular reflex. Moreover, patients might show improved gait performance at least up to 3 weeks after the vestibular intervention by the sensory reweight to coordinate vestibular input.

PMID: 28542112 DOI: 10.1097/MRR.0000000000000234

NeuroRehabilitation. 2018;43(2):247-254. doi: 10.3233/NRE-182427.

Vestibular rehabilitation training in patients with subacute stroke: A preliminary randomized controlled trial.

Tramontano M[1], Bergamini E[2], Iosa M[1], Belluscio V[2], Vannozzi G[2], Morone G[1,3].

Author information

Abstract

BACKGROUND: Vestibular rehabilitation (VR) consists in a customized exercise program patient-centred that includes a combination of different exercise components with the aim to promote gaze stability, improve balance and gait, and facilitate somatosensory integration.

OBJECTIVE: The aim of this study was to investigate the effect of customized vestibular rehabilitation training on gait stability of patients with subacute stroke.

METHODS: Twenty-five inpatients (12 M, age: 64.1±12.1 years) with diagnosis of subacute stroke were enrolled and randomized in two groups. All patients were evaluated before and after 4 weeks of training sessions. An instrumented 10-Meter Walk Test together with traditional clinical scales were used to assess VR effects. To investigate if any fall event occurred after patients' dismissal, they were followed-up at three and twelve months after dismissal.

RESULTS: Higher values of walking speed and stride length were observed in the VR group. Conversely, no significant difference was found in terms of trunk stability. The results of between-group comparison highlight significant differences between the two groups for different clinical scale scores.

CONCLUSION: VR could be included into a rehabilitation program for patients with stroke for improving their gait and dynamic balance acting on their vestibular system as facilitator of recovery.

KEYWORDS: Vestibular rehabilitation; dynamic balance and gait; instrumented assessment; stroke

NIH U.S. National Library of Medicine

ClinicalTrials.gov

Vestibular Rehabilitation for Strokepatients With Dizziness

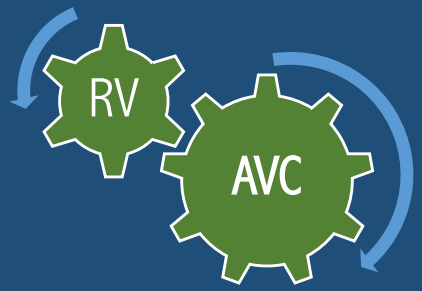
- Stroke
- Dizziness
- Other: Vestibular rehabilitation
- Lund University Malmö, Sweden

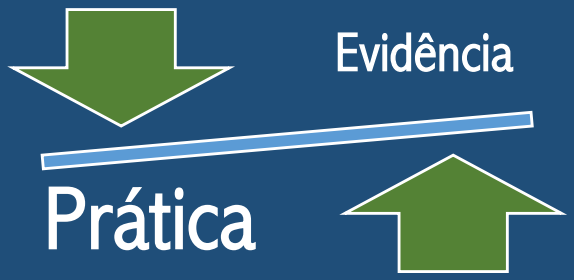
ClinicalTrials.gov Identifier: NCT01797744

The Effects of Somatosensory and Vestibular Rehabilitation Additional Conventional Therapy on Balance in Patients With Acute Stroke.

- Exercise
- Acute Stroke
- Behavioral: Somatosensorial and Vestibular Exercises
- Behavioral: Conventional Group
- Inonu University Malatya, Turkey

ClinicalTrials.gov Identifier: NCT03477188





Investigação

O efeito dos exercícios oculomotores (EOM) e de estabilização do olhar (EEO) no equilíbrio dos indivíduos após AVC

ClinicalTrials.gov PRS
Protocol Registration and Results System

Protocol Registration Receipt
10/30/2014

Effect of Oculomotor and Gaze Stability Exercises on the Improvement of Balance After Stroke

Porto Biomed. J. 2017;2(3):76–80

PORTO BIOMEDICAL JOURNAL
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Porto Biomedical Journal
http://www.portobiomedicaljournal.com/

Original article

Effects of oculomotor and gaze stability exercises on balance after stroke: Clinical trial protocol

Carla Pimenta [a,*], Anabela Correia [a], Marta Alves [b], Daniel Virella [b]

[a] Department of Physical Medicine and Rehabilitation, Hospital Curry Cabral, Centro Hospitalar Lisboa Central, Portugal
[b] Epidemiology and Statistics Office of the Research Unit, Centro Hospitalar de Lisboa Central, Portugal

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Keywords:
Stroke
Balance
Domiciliary training
Rehabilitation
Oculomotor and gaze stability exercises

ABSTRACT

Background: The inability to maintain balance after stroke is an important risk factor for falling and relates to decreased potential for recovery. The vestibular system and gaze stability contribute respectively to postural stability and to maintain balance. Rehabilitation may be more effective with domiciliary training.
Objective: This trial aims to verify if balance impairment after stroke improves with a domiciliary oculomotor and gaze stability training program.
Methods: Individuals older than 60 years, discharged after suffering brain stroke with referral to the physiotherapy department, will be assessed for orthostatic balance. Patients with stroke diagnosis 3–15 months before recruitment, positive Romberg test and able to walk 3 m alone are invited to participate in this randomized controlled trial. Participants will be allocated in two intervention groups through block randomization, either the current rehabilitation program or to a supplemental intervention focused on oculomotor and gaze stability exercises to be applied at home twice a day for three weeks. Primary outcome measures are the Motor Assessment Scale, Berg Balance Scale and Timed Up and Go Test. Trial registration: ClinicalTrials.gov (NCT02280980).
Results: A minimum difference of four seconds in the TUG and a minimum difference of four points in BBS will be considered positive outcomes.
Conclusions: Oculomotor and gaze stability exercises may be a promising complement to conventional physiotherapy intervention after brain stroke, improving the balance impairment.

Carla Pimenta

Efeitos dos Exercícios Oculomotores e de Estabilização do Olhar na Mobilidade Funcional após Acidente Vascular Cerebral

Anabela Correia
Carla Pimenta
Marta Alves
Daniel Virella

CENTRO HOSPITALAR DE LISBOA CENTRAL EPE

X Congresso Nacional de Fisioterapeutas
Aveiro · 2017

RESUMOS DE COMUNICAÇÕES ORAIS

CO33. Um novo "olhar" na mobilidade funcional após Acidente Vascular Cerebral

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2-Assistente convidada, ESTeSL – Escola Superior de Tecnologia da Saúde de Lisboa, Instituto Politécnico de Lisboa
E-mail: abdcorreia@gmail.com

Introdução
As alterações do controlo postural são comuns após acidente vascular cerebral (AVC), comprometendo a mobilidade funcional que depende da estabilidade e do equilíbrio. As alterações no equilíbrio poderão estar relacionadas com a incapacidade de analisar corretamente as diferentes informações sensoriais de modo a produzir uma resposta motora adequada.

Objectivo
Verificar os efeitos dos exercícios oculomotores (EOM) e de estabilização do olhar (EEO), na melhoria da mobilidade funcional em indivíduos com alterações de equilíbrio pós AVC.

Metodologia
Ensaio clínico aleatorizado, controlado, sem ocultação. Os indivíduos referenciados ao Serviço de Medicina Física e de Reabilitação de um hospital terciário, maiores de 60 anos, 3 a 15 meses após AVC, com alterações de equilíbrio e marcha autónoma constituíram a população em estudo. Após a avaliação inicial, os indivíduos foram alocados por aleatorização com estratificação por idade, funcionalidade e equilíbrio, ao grupo observacional (GO) ou de intervenção (GI). O GI realizou um programa domiciliário de EOM e de EEO durante três semanas, adicionalmente ao tratamento habitual de reabilitação. Foi considerado sucesso da intervenção a descida mínima de 4 segundos no Timed Up and Go Test (TUG). Para comparar a mobilidade funcional entre GI e GO foi utilizado o teste Qui-quadrado. Foi calculado o risco relativo (RR) de sucesso, com o respetivo IC95%.

Resultados
Dos 171 indivíduos referenciados, durante 40 meses, 56 constituíram a amostra em estudo, dos quais 9 foram excluídos durante a fase experimental. O GO ficou constituído por 18 homens e 7 mulheres, com uma mediana de idade de 72 anos [min. 65, max. 87]. O GI ficou constituído por 15 homens e 7 mulheres, com uma mediana de idade de 75 anos [min. 60, max. 86]. O sucesso foi atingido em 8/22 indivíduos do GI (mediana da variação do TUG -1,66 segundos) e 2/25 indivíduos do GO (mediana da variação do TUG -0,98 segundos); RR=4,5; IC95% 1,08-19,18; p=0,012.

Conclusão
De acordo com os resultados obtidos os EOM e EEO parecem ser um complemento promissor à intervenção da fisioterapia após AVC. Este tipo de exercícios atua para além do sistema somatossensorial (onde se centram as abordagens mais tradicionais) para a recuperação da mobilidade funcional.

Agradecimentos
Dr.ª Marta Alves e Dr. Daniel Virella (Gabinete de Análise Epidemiológica e Estatística do Centro de Investigação do Centro Hospitalar de Lisboa Central).

Domiciliary gaze stability and oculomotor exercises improves balance after stroke. BetterBalance, a randomized controlled trial

World Confederation for Physical Therapy CONGRESS 2019 Geneva

Anabela Correia[1,2], Carla Pimenta[1,2], Marta Alves[3], Daniel Virella[3]

1. Physiotherapy Department, Hospital Curry Cabral, Centro Hospitalar Universitário Lisboa Central (CHULC). 2. Department of Rehabilitation Science and Technology, Escola Superior de Tecnologia da Saúde de Lisboa, Instituto Politécnico de Lisboa. 3. Epidemiology and Statistics Office of the Research Unit, CHULC, Portugal.

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Carla Pimenta

Ensaio Clínico

Critérios Inclusão:
Diagnóstico AVC 3-15 Meses;
Romberg +;
Marcha autónoma.

Critérios Exclusão:
Problemas prévios de equilíbrio;
Alterações osteo-articulares graves;
Já ter realizado EOM e/ou EEO.

217 pacientes com AVC referenciados para a Fisioterapia do HCC em regime ambulatório, em 4 anos, 147 com mais de 60 anos.
83 cumpriam critérios de inclusão, 12 foram excluídos por problemas de equilíbrio prévios.

Outcomes (Critérios de Sucesso): Quedas (ausência); Escala de Equilíbrio de Berg (subida de 4 pontos); Timed Up And Go test (descida de 4 segundos).

n=71

Aleatorização estratificada

(Idade, funcionalidade e risco de queda)

Grupo observacional (GO) n=35

Tratamento habitual (TH)

Grupo Intervenção (GI) n=36

TH + Plano domiciliário EOM e EEO

3 excluídos

n=32

Fase Experimental

3 semanas

7 excluídos

n=29

Resultados

Amostra:
Idade 60-87 anos (mediana GO 73; GO 74). Distribuição similar por género, tipo de AVC e incidência de quedas antes do recrutamento.

Critérios de sucesso: 11/32 pacientes do GO; **26/29 do GI**.
Ausência de quedas no GI; 4 pacientes com registo de quedas no GO.

O aumento na EEB foi maior no GI ($p<0.001$ variação da mediana 7 vs 2). **Maior descida no TUG no GI** (variação da mediana GO=-0.72 seg.; GI=-1.28 seg.; $p=0.059$).

Conclusões

A amostra deste ensaio clínico não é suficiente para provar a eficácia dos EOM e EEO na melhoria do equilíbrio após AVC.

Os resultados sugerem que esta pode ser uma intervenção complementar promissora para diminuir o risco de queda nesta população.

Aguardemos pelos resultados finais...

Key messages

A reeducação vestibular pode/deve ser uma estratégia a incluir, pelos fisioterapeutas, na reabilitação de pacientes com AVC.

A otimização da função vestibular parece atuar como facilitador da recuperação, nomeadamente nas alterações percetivas, no equilíbrio e na marcha, reduzindo o risco de queda.

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DA EVIDÊNCIA... À PRÁTICA
IV EDIÇÃO FÓRUM MOVIMENTO FISIO

ACIDENTE VASCULAR CEREBRAL E REEDUCAÇÃO VESTIBULAR:

DA EVIDÊNCIA... À PRÁTICA ou DA PRÁTICA ... À EVIDÊNCIA???

OBRIGADA PELA VOSSA ATENÇÃO!

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carla.pimenta@chlc.min-saude.pt