Welcome to this edition of Speech & Language Therapy Update.
The aims of this publication are:

❖ To bring together a range of recently-published research reports, articles and electronic resources to help Speech Therapists keep up-to-date with developments.

❖ To remind readers of S&LT Update of the services available from the Library & Knowledge Service – we can supply you with 1:1 or small group training in literature searching skills; obtain full-text articles for you; or provide services in literature searching to help you with your research tasks.

❖ To respond to your information needs – if you have any suggestions on the type of research articles you would find helpful in future editions of S&LT Update, then please let us know – contact details are below.

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If the article is available electronically, this is noted at the end of the Abstract. [Press CTRL-click to open the link. You will need to be registered for Athens (see above) to be able to access the full text.]
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APHASIA

The utility of lesion classification in predicting language and treatment outcomes in chronic stroke-induced aphasia.

**Author(s):** Meier, Erin L.; Johnson, Jeffrey P.; Pan, Yue; Kiran, Swathi

**Source:** Brain Imaging & Behavior; Dec 2019; vol. 13 (no. 6); p. 1510-1525

**Publication Date:** Dec 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31093842

**Abstract:** Stroke recovery models can improve prognostication of therapy response in patients with chronic aphasia, yet quantifying the effect of lesion on recovery is challenging. This study aimed to evaluate the utility of lesion classification via gray matter (GM)-only versus combined GM plus white matter (WM) metrics and to determine structural measures associated with aphasia severity, naming skills, and treatment outcomes. Thirty-four patients with chronic aphasia due to left hemisphere infarct completed T1-weighted and DTI scans and language assessments prior to receiving a 12-week naming treatment. GM metrics included the amount of spared tissue within five cortical masks. WM integrity was indexed by spared tissue and fractional anisotropy (FA) from four homologous left and right association tracts. Clustering of GM-only and GM + WM metrics via k-medoids yielded four patient clusters that captured two lesion characteristics, size and location. Linear regression models revealed that both GM-only and GM + WM clustering predicted baseline aphasia severity and naming skills, but only GM + WM clustering predicted treatment outcomes. Spearman correlations revealed that without controlling for lesion volume, the majority of left hemisphere metrics were related to language measures. However, adjusting for lesion volume, no relationships with aphasia severity remained significant. FA from two ventral left WM tracts was related to naming and treatment success, independent of lesion size. In sum, lesion volume and GM metrics are sufficient predictors of overall aphasia severity in patients with chronic stroke, whereas diffusion metrics reflecting WM tract integrity may add predictive power to language recovery outcomes after rehabilitation.

**Database:** CINAHL

Neural structures supporting spontaneous and assisted (entrained) speech fluency.

**Author(s):** Bonilha, Leonardo; Hillis, Argye E; Wilmskoetter, Janina; Hickok, Gregory; Basilakos, Alexandra; Munsell, Brent; Rorden, Chris; Fridriksson, Julius

**Source:** Brain: A Journal of Neurology; Dec 2019; vol. 142 (no. 12); p. 3951-3962

**Publication Date:** Dec 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31580418

**Abstract:** Non-fluent speech is one of the most common impairments in post-stroke aphasia. The rehabilitation of non-fluent speech in aphasia is particularly challenging as patients are rarely able to produce and practice fluent speech production. Speech entrainment is a behavioral technique that enables patients with non-fluent aphasia to speak fluently. However, its mechanisms are not well understood and the level of improved fluency with speech entrainment varies among individuals with non-fluent aphasia. In this study, we evaluated the behavioral and neuroanatomical factors
associated with better speech fluency with the aid of speech entrainment during the training phase of speech entrainment. We used a lesion-symptom mapping approach to define the relationship between chronic stroke location on MRI and the number of different words per second produced during speech entrainment versus picture description spontaneous speech. The behavioural variable of interest was the speech entrainment/picture description ratio, which, if ≥1, indicated an increase in speech output during speech entrainment compared to picture description. We used machine learning (shallow neural network) to assess the statistical significance and out-of-sample predictive accuracy of the neuroanatomical model, and its regional contributors. We observed that better assisted speech (higher speech entrainment/picture description ratio) was achieved by individuals who had preservation of the posterior middle temporal gyrus, inferior fronto-occipital fasciculus and uncinate fasciculus, while exhibiting lesions in areas typically associated with non-fluent aphasia, such as the superior longitudinal fasciculus, precentral, inferior frontal, supramarginal and insular cortices. Our findings suggest that individuals with dorsal stream damage but preservation of ventral stream structures are more likely to achieve more fluent speech with the aid of speech entrainment compared to spontaneous speech. This observation provides insight into the mechanisms of non-fluent speech in aphasia and has potential implications for future research using speech entrainment for rehabilitation of non-fluent aphasia.

Database: CINAHL

Clinical and neuroimaging characteristics of clinically unclassifiable primary progressive aphasia.

Author(s): Utianski, Rene L.; Botha, Hugo; Martin, Peter R.; Schwarz, Christopher G.; Duffy, Joseph R.; Clark, Heather M.; Machulda, Mary M.; Butts, Alissa M.; Lowe, Val J.; Jack, Clifford R.; Senjem, Matthew L.; Spychalla, Anthony J.; Whitwell, Jennifer L.; Josephs, Keith A.; Jack, Clifford R Jr

Source: Brain & Language; Oct 2019; vol. 197
Publication Date: Oct 2019
Publication Type(s): Academic Journal
PubMedID: 31419589
Abstract: Many patients who meet core/root criteria for Primary Progressive Aphasia (PPA) are not classifiable as a recognized variant and are often excluded from neuroimaging studies. Here, we detail neurological, neuropsychological, speech and language assessments, and anatomic and molecular neuroimaging (MRI, PiB-PET, and FDG-PET) for fifteen (8 female) clinically unclassifiable PPA patients. Median age of onset was 64 years old with median 3 years disease duration at exam. Three patients were amyloid positive on PiB-PET. 14/15 patients had abnormal FDG-PETs with left predominant hypometabolism, affecting frontal, temporal, parietal, and even occipital lobes. Patients had mild to severe clinical presentations. Visualization of the FDG-PETs principal component analysis revealed patterns of hypometabolism similar to those seen in the PPA variants and suggests the brain regions affected in unclassifiable PPA patients are no different from those who are more easily classifiable. These findings may inform future modifications to the diagnostic criteria to improve diagnostic classification.

Database: CINAHL

Assessing and mapping language, attention and executive multidimensional deficits in stroke aphasia.

Author(s): Schumacher, Rahel; Halai, Ajay D; Ralph, Matthew A Lambon; Lambon Ralph, Matthew A

Source: Brain: A Journal of Neurology; Oct 2019; vol. 142 (no. 10); p. 3202-3216
Publication Date: Oct 2019
There is growing awareness that aphasia following a stroke can include deficits in other cognitive functions and that these are predictive of certain aspects of language function, recovery and rehabilitation. However, data on attentional and executive (dys)functions in individuals with stroke aphasia are still scarce and the relationship to underlying lesions is rarely explored. Accordingly in this investigation, an extensive selection of standardized non-verbal neuropsychological tests was administered to 38 individuals with chronic post-stroke aphasia, in addition to detailed language testing and MRI. To establish the core components underlying the variable patients’ performance, behavioural data were explored with rotated principal component analyses, first separately for the non-verbal and language tests, then in a combined analysis including all tests. Three orthogonal components for the non-verbal tests were extracted, which were interpreted as shift-update, inhibit-generate and speed. Three components were also extracted for the language tests, representing phonology, semantics and speech quanta. Individual continuous scores on each component were then included in a voxel-based correlational methodology analysis, yielding significant clusters for all components. The shift-update component was associated with a posterior left temporo-occipital and bilateral medial parietal cluster, the inhibit-generate component was mainly associated with left frontal and bilateral medial frontal regions, and the speed component with several small right-sided fronto-parieto-occipital clusters. Two complementary multivariate brain-behaviour mapping methods were also used, which showed converging results. Together the results suggest that a range of brain regions are involved in attention and executive functioning, and that these non-language domains play a role in the abilities of patients with chronic aphasia. In conclusion, our findings confirm and extend our understanding of the multidimensionality of stroke aphasia, emphasize the importance of assessing non-verbal cognition in this patient group and provide directions for future research and clinical practice. We also briefly compare and discuss univariate and multivariate methods for brain-behaviour mapping.

Initial National Institute of Health Stroke Scale to Early Predict the Improvement of Swallowing in Patients with Acute Ischemic Stroke.

Objectives: To study the applicability of National Institutes of Health Stroke Scale (NIHSS) in early predicting the prognosis of poststroke dysphagia in an acute ward. Methods: This is an observational retrospective cohort study including adult patients with ischemic stroke. Patients with various factors affecting swallowing were excluded to obtain a representative sample of 165 patients. The main outcome measure was the improvements of oral intake function. Results: The scores of facial palsy (NIHSS item 4) (odds ratio [OR]: 0.484, 95% confidence interval [CI]: 0.279-0.838, P = .0096) and language/aphasia (NIHSS item 9) (OR: 0.562, 95% CI: 0.321-0.982, P = .0430) demonstrated significantly negative effects on the early improvement of dysphagia. Moreover, the improved patients had a 4.14-fold (95% CI: 2.53-11.23, P = .005) increased odds of returning home compared with nonimproved patients. Conclusions: Our findings provide evidence that early
improvement of poststroke dysphagia was significantly associated with a favorable discharge destination and NIHSS items of facial palsy and language/aphasia can be used at the onset of stroke to identify dysphagic patients at risk of achieving limited improvement. These findings provide valuable prognostic indicators for clinicians to make a precise outcome prediction at very early stage.

**Database:** CINAHL

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**Category specific recall in acute stroke: a case with letter speech.**

**Author(s):** De Letter, Miet; Van Borsel, John; Lanckmans, Ellen; Batens, Katja; Hemelsoet, Dimitri; Duyck, Wouter; Fias, Wim; Santens, Patrick

**Source:** Neurocase (Psychology Press); Oct 2019; vol. 25 (no. 5); p. 1-8

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31571518

Available at [Neurocase - from Unpaywall](#)

**Abstract:** Category selective recall in spontaneous speech after stroke has been reported only rarely. We recently described three cases demonstrating transient number speech in the acute stage of left hemispheric stroke and hypothesized a link with multilingualism and mathematical proficiency. In this report, we describe a similar case with a transient episode of utterances of randomly selected letters. Like in the three previous cases, this episode was preceded by a brief stage of mutism and ultimately evolved to Wernicke's aphasia over a period of days. This phenomenon is reviewed with reference to linguistic models and neuroanatomic and neurophysiological correlates.

**Database:** CINAHL

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**CT perfusion and EEG patterns in patients with acute isolated aphasia in seizure-related stroke mimics.**

**Author(s):** Manganotti, Paolo; Furlanis, Giovanni; Ajčević, Miloš; Polverino, Paola; Caruso, Paola; Ridolfi, Mariana; Pozzi-Mucelli, Roberta Antea; Cova, Maria Assunta; Naccarato, Marcello

**Source:** Seizure; Oct 2019; vol. 71; p. 110-115

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31323445

**Abstract:** Purpose: Isolated speech impairment is one of the most challenging clinical manifestations of stroke mimic (SM). We aimed to investigate perfusional and EEG pattern of isolated aphasia to better differentiate between vascular and epileptic etiology in emergency settings.

**Method:** We retrospectively analyzed 481 cases with acute focal neurological symptoms admitted to our Stroke Unit. The patients showing isolated aphasia and confirmed ischemic infarction or SM with seizure etiology on follow-up were included for subsequent analysis of clinical, neuroimaging, and EEG data. We investigated differences in CT Perfusion maps between ROI in the anatomical area compatible with clinical presentation, contralateral ROI and EEG in order to evaluate perfusion and brain oscillatory activity abnormalities.

**Results:** 45 patients presented isolated aphasia as principal neurological symptom: 27 cases due to acute ischemic event, 11 due to seizure SM, while 7 were SM due to other etiologies. Out of 11 SM patients with seizure etiology, significant hyperperfusion on CTP maps (MTT AI%<10%) and sharp EEG waves were observed in 8 patients, while in 3 patients slight hypoperfusion (MTT AI% 45%). All ischemic stroke patients presented slower EEG
Conclusions: The main finding of this study is the identification of different clinical and neuroimaging patterns of isolated aphasia with epileptic or ischemic etiology in emergency settings. 

**Database:** CINAHL

**Differences in Brain Areas Affecting Language Function After Stroke.**

**Author(s):** Kyeong, Sunghyon; Kang, Hyunkoo; Kyeong, Sohyon; Kim, Dae Hyun  
**Source:** Stroke (00392499); Oct 2019; vol. 50 (no. 10); p. 2956-2959  
**Publication Date:** Oct 2019  
**Publication Type(s):** Academic Journal  
**PubMedID:** 31545695  
**Available at Stroke** - from Ovid (Journals @ Ovid) - Remote Access  

**Abstract:** Background and Purpose: Brain areas associated with functional improvement differ between acute and chronic phases after stroke. This study investigated brain areas associated with language function, according to time after stroke. Methods: Patients with aphasia after stroke were divided into subacute (≤3 months after stroke, 17 patients) and chronic groups (>12 months after stroke, 23 patients). Voxel-wise linear regression analyses in each group were conducted by using fractional anisotropy mapping in diffusion tensor images as a dependent variable, while scores of spontaneous speech, comprehension, repetition, and naming were used as independent variables. Results: Structural connectivity in the left dorsal pathway (eg, superior temporal gyrus, inferior parietal lobule, and superior longitudinal fasciculus) was positively associated with spontaneous speech, repetition, and naming, whereas structural connectivity in the corona radiata, internal capsule, and corpus callosum of the right hemisphere was negatively associated with language function in the subacute phase. Comprehension was associated with the left superior temporal gyrus and the right corona radiata in the subacute phase and the right corpus callosum in the chronic phase (PFWE<0.05). Conclusions: More lateralized language function related to the dorsal pathway was influenced in the bilateral brain areas in the subacute phase but not in the chronic phase. Less lateralized language function related to the ventral pathway was influenced in the bilateral brain areas during both subacute and chronic phases after stroke.  

**Database:** CINAHL

**Diagnostic accuracy of clinical tools for assessment of acute stroke: a systematic review.**

**Author(s):** Antipova, Daria; Eadie, Leila; Macaden, Ashish; Wilson, Philip  
**Source:** BMC Emergency Medicine; Sep 2019; vol. 19 (no. 1)  
**Publication Date:** Sep 2019  
**Publication Type(s):** Academic Journal  
**PubMedID:** 31484499  
**Available at BMC emergency medicine** - from BioMed Central  
**Available at BMC emergency medicine** - from Europe PubMed Central - Open Access  
**Available at BMC emergency medicine** - from ProQuest (Health Research Premium) - NHS Version  
**Available at BMC emergency medicine** - from Unpaywall  

**Abstract:** Introduction: Recanalisation therapy in acute ischaemic stroke is highly time-sensitive, and requires early identification of eligible patients to ensure better outcomes. Thus, a number of clinical assessment tools have been developed and this review examines their diagnostic
capabilities. Methods: Diagnostic performance of currently available clinical tools for identification of acute ischaemic and haemorrhagic strokes and stroke mimicking conditions was reviewed. A systematic search of the literature published in 2015-2018 was conducted using PubMed, EMBASE, Scopus and The Cochrane Library. Prehospital and in-hospital studies with a minimum sample size of 300 patients reporting diagnostic accuracy were selected. Results: Twenty-five articles were included. Cortical signs (gaze deviation, aphasia and neglect) were shown to be significant indicators of large vessel occlusion (LVO). Sensitivity values for selecting subjects with LVO ranged from 23 to 99% whereas specificity was 24 to 97%. Clinical tools, such as FAST-ED, NIHSS, and RACE incorporating cortical signs as well as motor dysfunction demonstrated the best diagnostic accuracy. Tools for identification of stroke mimics showed sensitivity varying from 44 to 91%, and specificity of 27 to 98% with the best diagnostic performance demonstrated by FABS (90% sensitivity, 91% specificity). Hypertension and younger age predicted intracerebral haemorrhage whereas history of atrial fibrillation and diabetes were associated with ischaemia. There was a variation in approach used to establish the definitive diagnosis. Blinding of the index test assessment was not specified in about 50% of included studies. Conclusions: A wide range of clinical assessment tools for selecting subjects with acute stroke has been developed in recent years. Assessment of both cortical and motor function using RACE, FAST-ED and NIHSS showed the best diagnostic accuracy values for selecting subjects with LVO. There were limited data on clinical tools that can be used to differentiate between acute ischaemia and haemorrhage. Diagnostic accuracy appeared to be modest for distinguishing between acute stroke and stroke mimics with optimal diagnostic performance demonstrated by the FABS tool. Further prehospital research is required to improve the diagnostic utility of clinical assessments with possible application of a two-step clinical assessment or involvement of simple brain imaging, such as transcranial ultrasonography.

Database: CINAHL

What neuropsychological functions best discriminate performance in adults post-stroke?

Author(s): Rodrigues, Jaqueline de Carvalho; Machado, Wagner de Lara; da Fontoura, Denise Ren; Almeida, Andrea Garcia; Brondani, Rosane; Martins, Sheila Ouriques; Ruschel Bandeira, Denise; Salles, Jerusa Fumagalli de

Source: Applied Neuropsychology: Adult; Sep 2019; vol. 26 (no. 5); p. 452-464

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 29617168

Abstract: This study aimed to develop a short version of an instrument to detect cognitive impairment in stroke patients, investigate which cognitive dimensions best discriminate between stroke patients and healthy adults and to graphically analyze the relationships among the neuropsychological variables and groups. This pilot study included 94 adults (49 post-stroke and 45 neurologically healthy) who answered the Brief Neuropsychological Assessment Battery NEUPSILIN for patients with expressive aphasia (NEUPSILIN-Af) to assess orientation, perception, memory, praxis, executive functions, oral language, and academic achievement (written language and arithmetic). The IRT Rasch model for dichotomous data indicated the exclusion of items that could not be used to discriminate performances. ROC curves indicated that only the orientation, oral language, academic achievement, and executive function dimensions could be used to differentiate between the clinical and healthy groups. Graphical analysis indicated that independently of the relation among variables, orientation and executive functions tasks are essentials in the neuropsychological assessments. This study contributes to the development of specific and sensitive neuropsychological instruments to assess stroke patients and to better understand the common deficits present in this clinical population.
Comparison of the efficacy of gesture-verbal treatment and doll therapy for managing neuropsychiatric symptoms in older patients with dementia.

Author(s): Balzotti, Angela; Filograsso, Marianna; Altamura, Claudia; Fairfield, Beth; Bellomo, Antonello; Daddato, Fabio; Vacca, Rosa Anna; Altamura, Mario

Source: International Journal of Geriatric Psychiatry; Sep 2019; vol. 34 (no. 9); p. 1308-1315

Publication Date: Sep 2019
Publication Type(s): Academic Journal
PubMedID: 30136743

Available at International journal of geriatric psychiatry - from Wiley Online Library
Available at International journal of geriatric psychiatry - from Unpaywall

Abstract: Background: The prevalence of neuropsychiatric symptoms (NPS) diminishes the quality of life and increases the care burden in patients with dementia. Despite the clinical importance of dementia-associated NPS, no protocols for treating NPS are already well established. Attention has turned to the effectiveness of nonpharmacological treatments for NPS since their potential safe alternative to pharmacotherapy. Objective: This study is aimed to compare the effects in older individuals with dementia living in a residential care, of two intervention programs, the gesture-verbal treatment (GVT), a treatment implemented by us on a previous method for word retrieval in individuals with aphasia, and the better-known doll therapy (DT). The GVT would act on both receptive and expressive language skills, the DT on attachment and emotional connections. Methods: We evaluated NPS by the neuropsychiatric inventory in a total of 30 patients divided into 3 groups, the GVT, the DT, and control groups, using a pre-post design. The treatment groups completed 12-week nonpharmacological interventions in addition to standard rehabilitative therapies, while the control group participated only in standard rehabilitative therapies. Results: The DT group showed significant improvements in agitation, irritability, apathy, depression, and delusions relative to controls. The GVT group showed significant improvements in apathy and depression with respect to controls. The DT intervention ameliorated symptoms of agitation compared to the GVT intervention whereas the GVT intervention improved apathy compared to the DT intervention. Conclusion: Improved understanding of the potential therapeutic benefits of different treatments for neuropsychiatric symptoms is crucial for establishing nonpharmacological interventions in dementia.

Database: CINAHL

Computerised speech and language therapy in post-stroke aphasia.

Author(s): Flöel, Agnes

Source: Lancet Neurology; Sep 2019; vol. 18 (no. 9); p. 806-807

Publication Date: Sep 2019
Publication Type(s): Academic Journal
PubMedID: 31397279

Available at The Lancet. Neurology - from ProQuest (Health Research Premium) - NHS Version
Available at The Lancet. Neurology - from Unpaywall

Database: CINAHL
Self-managed, computerised speech and language therapy for patients with chronic aphasia post-stroke compared with usual care or attention control (Big CACTUS): a multicentre, single-blinded, randomised controlled trial.

**Author(s):** Palmer, Rebecca; Dimairo, Munyaradzi; Cooper, Cindy; Enderby, Pam; Brady, Marian; Bowen, Audrey; Latimer, Nicholas; Julious, Steven; Cross, Elizabeth; Alshreef, Abualbisher; Harrison, Madeleine; Bradley, Ellen; Witts, Helen; Chater, Tim

**Source:** Lancet Neurology; Sep 2019; vol. 18 (no. 9); p. 821-833

**Publication Date:** Sep 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31397288

Available at [The Lancet. Neurology](https://www.thelancet.com) - from ProQuest (Health Research Premium) - NHS Version

Available at [The Lancet. Neurology](https://www.thelancet.com) - from Unpaywall

**Abstract:**

Background: Post-stroke aphasia might improve over many years with speech and language therapy; however speech and language therapy is often less readily available beyond a few months after stroke. We assessed self-managed computerised speech and language therapy (CSLT) as a means of providing more therapy than patients can access through usual care alone.

Methods: In this pragmatic, superiority, three-arm, individually randomised, single-blind, parallel group trial, patients were recruited from 21 speech and language therapy departments in the UK. Participants were aged 18 years or older and had been diagnosed with aphasia post-stroke at least 4 months before randomisation; they were excluded if they had another premorbid speech and language disorder caused by a neurological deficit other than stroke, required treatment in a language other than English, or if they were currently using computer-based word-finding speech therapy. Participants were randomly assigned (1:1:1) to either 6 months of usual care (usual care group), daily self-managed CSLT plus usual care (CSLT group), or attention control plus usual care (attention control group) with the use of computer-generated stratified blocked randomisation (randomly ordered blocks of sizes three and six, stratified by site and severity of word finding at baseline based on CAT Naming Objects test scores). Only the outcome assessors and trial statistician were masked to the treatment allocation. The speech and language therapists who were doing the outcome assessments were different from those informing participants about which group they were assigned to and from those delivering all interventions. The statistician responsible for generating the randomisation schedule was separate from those doing the analysis. Co-primary outcomes were the change in ability to retrieve personally relevant words in a picture naming test (with 10% mean difference in change considered a priori as clinically meaningful) and the change in functional communication ability measured by masked ratings of video-recorded conversations, with the use of Therapy Outcome Measures (TOMs), between baseline and 6 months after randomisation (with a standardised mean difference in change of 0.45 considered a priori as clinically meaningful). Primary analysis was based on the modified intention-to-treat (mITT) population, which included randomly assigned patients who gave informed consent and excluded those without 6-month outcome measures. Safety analysis included all participants. This trial has been completed and was registered with the ISRCTN, number ISRCTN68798818.

Findings: From Oct 20, 2014, to Aug 18, 2016, 818 patients were assessed for eligibility, of which 278 (34%) participants were randomly assigned (101 [36%] to the usual care group; 97 [35%] to the CSLT group; 80 [29%] to the attention control group). 86 patients in the usual care group, 83 in the CSLT group, and 71 in the attention control group contributed to the mITT. Mean word finding improvements were 1.1% (SD 11.2) in the usual care group, 16.4% (15.3) in the CSLT group, and 2.4% (8.8) in the attention control group. The mean difference in change between the CSLT and usual care group was 16.2% (95% CI 12.7 to 19.6; p<0.0001) higher in the CSLT group than in the usual care group and was 14.4% (10.8 to 18.1) higher than in the attention control group. Mean changes in TOMs were 0.05 (SD 0.59) in the usual care group (n=84), 0.04 (0.58) in the CSLT group (n=81), and 0.10 (0.61) in the attention control group (n=68); the mean difference in change between the CSLT
and usual care groups was -0.03 (-0.21 to 0.14; p=0.709) and between the CSLT and attention control groups was -0.01 (-0.20 to 0.18). The incidence of serious adverse events per year were rare with 0.23 events in the usual care group, 0.11 in the CSLT group, and 0.16 in the attention control group. 40 (89%) of 45 serious adverse events were unrelated to trial activity and the remaining five (11%) of 45 serious adverse events were classified as unlikely to be related to trial activity. Interpretation: CSLT plus usual care resulted in a clinically significant improvement in personally relevant word finding but did not result in an improvement in conversation. Future studies should explore ways to generalise new vocabulary to conversation for patients with chronic aphasia post-stroke. Funding: National Institute for Health Research, Tavistock Trust for Aphasia.

**Database:** CINAHL

**Assessment of the quality and content of clinical practice guidelines for post-stroke rehabilitation of aphasia.**

**Author(s):** Wang, Yu; Li, Huijuan; Wei, Huiping; Xu, Xiaoyan; Jin, Pei; Wang, Zheng; Zhang, Shian; Yang, Luping; Oliveira., Fabricio

**Source:** Medicine; Aug 2019; vol. 98 (no. 31)

**Publication Date:** Aug 2019

**Publication Type:** Academic Journal

**PubMedID:** 31374031

Available at Medicine - from Europe PubMed Central - Open Access

Available at Medicine - from Unpaywall

**Abstract:** Objectives: The purpose of this study was to evaluate the quality of guidelines for rehabilitation of post-stroke aphasia using the Appraisal of Guidelines for Research and Evaluation (AGREE-II) instrument and identify consistency of different guidelines. Methods: A systematic search was undertaken from inception to October 2018. Two reviewers independently screened all titles and abstracts, and assessed eligible guidelines using the AGREE-II. Agreement among reviewers was measured by using intra-class correlation coefficient (ICC). Results: From 5008 records screened, 8 guidelines met the inclusion criteria. The quality of guidelines was heterogeneous. Three guidelines were rated high (6.5) across; the highest rated domain was "scope and purpose" (median score 95.8%); the lowest rated domain was "rigor of development" (median score 67.2%). An overall high degree of agreement among reviewers to each domain was observed (ICC ranged from 0.60 to 0.99). The speech language therapy was recommended in 3 guidelines. Four guidelines described group treatment was beneficial for the continuum of care. However, other therapies for aphasia varied in the level of detail across guidelines. Conclusions: Our study indicated the quality of guidelines for post-stroke aphasia needed to be improved. Moreover, the treatment recommendations of aphasia existed discrepancy among the included guidelines. Therefore, it is suggested to pay more attention on the rigor of methodology and applicability during the process of the formulation of guideline. Future research should focus on the effectiveness, intensity, and duration of treatment measures.

**Database:** CINAHL

**Progressive agrammatic aphasia without apraxia of speech as a distinct syndrome.**

**Author(s):** Tetzloff, Katerina A; Duffy, Joseph R; Clark, Heather M; Utianski, Rene L; Strand, Edythe A; Machulda, Mary M; Botha, Hugo; Martin, Peter R; Schwarz, Christopher G; Senjem, Matthew L; Reid, Robert I; Gunter, Jeffrey I; Spychalla, Anthony J; Knopman, David S; Petersen, Ronald C; Jack, Clifford R; Lowe, Val J; Josephs, Keith A; Whitwell, Jennifer L

**Source:** Brain: A Journal of Neurology; Aug 2019; vol. 142 (no. 8); p. 2466-2482
Agrammatic aphasia affects grammatical language production and can result from a neurodegenerative disease. Although it typically presents with concomitant apraxia of speech, this is not always the case. Little is known about the clinical course and imaging features of patients that present with agrammatism in the absence of apraxia of speech, which we will refer to as progressive agrammatic aphasia. We aimed to make a detailed description of the longitudinal clinical, linguistic, and neuroimaging features of a cohort of 11 patients with progressive agrammatic aphasia to provide a complete picture of this syndrome. All patients underwent detailed speech and language, neurological and neuropsychological assessments, 3 T structural and diffusion tensor imaging MRI, 18F-fluorodeoxyglucose and Pittsburgh compound B PET. The 11 patients were matched by age and gender to 22 patients who had mixed apraxia of speech and agrammatism. The progressive agrammatic aphasia patients performed abnormally on tests of language, general cognition, executive function, and functional ability at baseline and declined in these measures over time. Only two patients eventually developed apraxia of speech, while parkinsonism was absent-to-mild throughout all visits for all patients. When compared to the patients with mixed apraxia of speech and agrammatism, the patients with progressive agrammatic aphasia performed better on tests of motor speech and parkinsonism but more poorly, and declined faster over time, on tests of general aphasia severity, agrammatism, and naming. The patients with progressive agrammatic aphasia also showed different neuroimaging abnormalities, with greater atrophy, hypometabolism and white matter tract degeneration in the prefrontal and anterior temporal lobes compared to patients with mixed apraxia of speech and agrammatism. These differences were more pronounced as the disease progressed. These results demonstrate that progressive agrammatic aphasia has a different clinical disease course and different underlying neuroanatomical abnormalities than patients with the more common syndrome of mixed agrammatism and apraxia of speech. This supports the distinction of progressive agrammatic aphasia and has implications for the classification of patients with agrammatic aphasia.

Database: CINAHL

Constraint and multimodal approaches to therapy for chronic aphasia: A systematic review and meta-analysis.

Author(s): Pierce, John E.; Menahemi-Falkov, Maya; O'Halloran, Robyn; Togher, Leanne; Rose, Miranda L.

Source: Neuropsychological Rehabilitation; Aug 2019; vol. 29 (no. 7); p. 1005-1041

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 28920522

Abstract: Aphasia is a significant cause of disability and reduced quality of life. Two speech pathology treatment approaches appear efficacious: multimodal and constraint-induced aphasia therapies. In constraint-induced therapies, non-verbal actions (e.g., gesture, drawing) are believed to interfere with treatment and patients are therefore constrained to speech. In contrast, multimodal therapies employ non-verbal modalities to cue word retrieval. Given the clinical and theoretical implications, a comparison of these two divergent treatments was pursued. This systematic review investigated both approaches in chronic aphasia at the levels of impairment, participation and quality of life. After a systematic search, the level of evidence and methodological quality were rated. Meta-analysis was conducted on 14 single case experimental designs using Tau-U, while heterogeneity in
the four group designs precluded meta-analysis. Results showed that high-quality research was limited; however, findings were broadly positive for both approaches with neither being judged as clearly superior. Most studies examined impairment-based outcomes without considering participation or quality of life. The application and definition of constraint varied significantly between studies. Both constraint and multimodal therapies are promising for chronic post-stroke aphasia, but there is a need for larger, more rigorously conducted studies. The interpretation of "constraint" also requires clearer reporting.

Database: CINAHL

Acute Diffusivity Biomarkers for Prediction of Motor and Language Outcome in Mild-to-Severe Stroke Patients.

Author(s): Moulton, Eric; Magno, Serena; Valabregue, Romain; Amor-Sahli, Melika; Pires, Christine; Lehéry, Stéphane; Leger, Anne; Samson, Yves; Rosso, Charlotte

Source: Stroke (00392499); Aug 2019; vol. 50 (no. 8); p. 2050-2056

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31272324

Available at Stroke - from Ovid (Journals @ Ovid) - Remote Access

Abstract: Background and Purpose- Early severity of stroke symptoms-especially in mild-to-severe stroke patients-are imperfect predictors of long-term motor and aphasia outcome. Motor function and language processing heavily rely on the preservation of important white matter fasciculi in the brain. Axial diffusivity (AD) from the diffusion tensor imaging model has repeatedly shown to accurately reflect acute axonal damage and is thus optimal to probe the integrity of important white matter bundles and their relationship with long-term outcome. Our aim was to investigate the independent prognostic value of the AD of white matter tracts in the motor and language network evaluated at 24 hours poststroke for motor and aphasia outcome at 3 months poststroke. Methods- Seventeen (motor cohort) and 28 (aphasia cohort) thrombolyzed patients with initial mild-to-severe stroke underwent a diffusion tensor imaging sequence at 24 hours poststroke. Motor and language outcome were evaluated at 3 months poststroke with a composite motor score and the aphasia handicap scale. We first used stepwise regression to determine which classic (age, initial motor or aphasia severity, and lesion volume) and imaging (ratio of affected/unaffected AD of motor and language fasciculi) factors were related to outcome. Second, to determine the specificity of our a priori choices of fasciculi, we performed voxel-based analyses to determine if the same, additional, or altogether new regions were associated with long-term outcome. Results- The ratio of AD in the corticospinal tract was the sole predictor of long-term motor outcome, and the ratio of AD in the arcuate fasciculus-along with age and initial aphasia severity-was an independent predictor of 3-month aphasia outcome. White matter regions overlapping with these fasciculi naturally emerged in the corresponding voxel-based analyses. Conclusions- AD of the corticospinal tract and arcuate fasciculus are effective biomarkers of long-term motor and aphasia outcome, respectively.

Database: CINAHL

Evaluation of a community of practice for speech-language pathologists in aphasia rehabilitation: a logic analysis.

Author(s): Alary Gauvreau, Christine; Le Dorze, Guylaine; Kairy, Dahlia; Croteau, Claire

Source: BMC Health Services Research; Jul 2019; vol. 19 (no. 1)

Publication Date: Jul 2019
**Publication Type(s):** Academic Journal  
**PubMedID:** 31358002

Available at BMC health services research - from BioMed Central  
Available at BMC health services research - from Europe PubMed Central - Open Access  
Available at BMC health services research - from EBSCO (MEDLINE Complete)  
Available at BMC health services research - from ProQuest (Health Research Premium) - NHS Version  
Available at BMC health services research - from Unpaywall

**Abstract:**
Background: Aphasia is a communication disorder affecting participation. Although there are evidence-based practice recommendations about participation and aphasia rehabilitation, it may be challenging for speech-language pathologists to ensure that rehabilitation activities have an impact on the person's participation, in part due to time limitations. Participation remains limited after rehabilitation for persons who have aphasia. Communities of practice (CoPs) are a collaborative knowledge transfer strategy that can be used for evidence-based practice implementation. The aim of this study was to describe the components and evaluate a CoP for speech-language pathologists about participation and aphasia rehabilitation.

Methods: Logic analysis was used to determine the adequacy between resources, implemented activities, outputs and short-term outcomes of the CoP. Qualitative and quantitative descriptive data were collected through observation and participants' logbooks. Outputs and outcomes of the CoP were revealed through thematic analysis and interpretation of descriptive statistics.

Results: Resources including CoP design and educational aims, human and material resources were combined to create various web-based, online and offline activities. Participants invested more time per week than expected in the CoP, shared and created clinical tools and appreciated the array of suggested activities. Participant engagement allowed them to reflect, interact and collaborate with each other. All 13 participants reported they acquired knowledge about clinical tools and 12 mentioned they reflected on their practice. While the CoP was ongoing, six participants noticed evidence-practice gaps, seven prepared to change their practice, and three changed their practice towards including more participation-based considerations.

Conclusions: This study showed that speech-language pathologists can include more participation-based approaches in aphasia rehabilitation as a result of participating in a time-bound, web-based CoP.

**Database:** CINAHL

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**Cognitive functioning in chronic post-stroke aphasia.**

**Author(s):** Fonseca, José; Raposo, Ana; Martins, Isabel Pavão

**Source:** Applied Neuropsychology: Adult; Jul 2019; vol. 26 (no. 4); p. 355-364

**Publication Date:** Jul 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 29432034

**Abstract:** There is a minimal amount of knowledge regarding the cognitive abilities of people with aphasia. We evaluated the performance of individuals with chronic aphasia (AP) and control participants without aphasia (CP) with left hemisphere stroke in a battery of nonverbal cognitive tests and its relationship with aphasia severity, comprehension abilities, and speech fluency in a prospective cross-sectional study. Cognitive evaluation comprised 10 nonverbal tests. Scores were converted to age and education adjusted standard scores. Forty-eight AP and 32 CP were included. AP average scores were below normal range in three tests: Camel and Cactus Test, immediate recall of 5 Objects Test and Spatial Span. The mean test scores were significantly lower in AP than in CP,
except in four tests. Aphasia severity and verbal comprehension ability correlated significantly with semantic memory, constructive abilities and attention/processing speed tests. Subjects with nonfluent aphasia had lower scores than CP in memory, executive functions and attention tests, while subjects with fluent aphasia showed lower scores in memory tests only. On average half of the individuals with aphasia exhibit results within the normal range. Nonetheless, their performance was worse than that of controls, despite the fact that many tests do not correlate with the severity of language disorder.

**Database:** CINAHL

**A longitudinal study of speech production in primary progressive aphasia and behavioral variant frontotemporal dementia.**

**Author(s):** Ash, Sharon; Nevler, Naomi; Phillips, Jeffrey; Irwin, David J.; McMillan, Corey T.; Rascovsky, Katya; Grossman, Murray

**Source:** Brain & Language; Jul 2019; vol. 194; p. 46-57

**Publication Date:** Jul 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31075725

**Abstract:** We examined longitudinal change in language expression during a semi-structured speech sample in 48 patients with primary progressive aphasia (PPA) or behavioral variant frontotemporal dementia (bvFTD) and related this to longitudinal neuroimaging of cortical thickness available in 25 of these patients. All patient groups declined significantly on measures of both speech fluency and grammar, although patients with nonfluent/agrammatic PPA (naPPA) declined to a greater extent than patients with the semantic variant, the logopenic variant, and bvFTD. These patient groups also declined on several neuropsychological measures, but there was no correlation between decline in speech expression and decline in neuropsychological performance. Longitudinal decline in grammaticality, assessed by the number of well-formed sentences produced, was associated with longitudinal progression of gray matter atrophy in left frontal operculum/insula and bilateral temporal cortex.

**Database:** CINAHL

**The clinical management and rehabilitation of post stroke aphasia in Italy: evidences from the literature and clinical experience.**

**Author(s):** Mattioli, Flavia

**Source:** Neurological Sciences; Jul 2019; vol. 40 (no. 7); p. 1329-1334

**Publication Date:** Jul 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30900098

**Abstract:** Aphasia is one of the most devastating symptoms in stroke survivors and severely affects patients' communication, quality of life, and social interactions. Several factors are critical to the prediction of aphasia recovery, including acute stroke management and subsequent language rehabilitation. A comprehensive assessment of language skills with appropriate instruments in different phases of post stroke months and years is needed in patients, in order to monitor their language improvement and to guide speech therapies over time. Beyond spontaneous recovery, the effects of speech and language therapy in terms of time and dosage of administration during the course of post stroke aphasia are still under investigation. Data point to its efficacy either in the early
or in the chronic (> 6 months) post stroke phase, with greater effects if intensive treatments are provided. Tailored interventions for single patients' aphasia characteristics are recommended, with different levels of evidence for specific techniques. Ongoing trials and meta-analyses will be useful in order to change the allocation of rehabilitation resources for patients with aphasia.

**Database:** CINAHL

**Comparing the effects of clinician and caregiver-administered lexical retrieval training for progressive anoma.**

**Author(s):** Grasso, Stephanie M.; Shuster, Kaleigh M.; Henry, Maya L.

**Source:** Neuropsychological Rehabilitation; Jul 2019; vol. 29 (no. 6); p. 866-895

**Publication Date:** Jul 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 28662598

**Abstract:** There is a growing body of literature indicating that lexical retrieval training can result in improved naming ability in individuals with neurodegenerative disease. Traditionally, treatment is administered by a speech-language pathologist, with little involvement of caregivers or carry-over of practice into the home. This study examined the effects of a lexical retrieval training programme that was implemented first by a clinician and, subsequently, by a trained caregiver. Two dyads, each consisting of one individual with anomia caused by neurodegenerative disease (one with mild cognitive impairment and one with logopenic primary progressive aphasia) and their caregiver, participated in the study. Results indicated medium and large effect sizes for both clinician- and caregiver-trained items, with generalisation to untrained stimuli. Participants reported improved confidence during communication as well as increased use of trained communication strategies after treatment. This study is the first to document that caregiver-administered speech and language intervention can have positive outcomes when paired with training by a clinician. Caregiver-administered treatment may be a viable means of increasing treatment dosage in the current climate of restricted reimbursement, particularly for patients with progressive conditions.

**Database:** CINAHL

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**BRAIN INJURY/TRAUMA**

**Stuttering: Understanding and Treating a Common Disability.**

**Author(s):** Sander, Robert W.; Osborne, Charles A.

**Source:** American Family Physician; Nov 2019; vol. 100 (no. 9); p. 556-560

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31674746

Available at American family physician - from EBSCO (MEDLINE Complete)

**Abstract:** Childhood-onset fluency disorder, the most common form of stuttering, is a neurologic disability resulting from an underlying brain abnormality that causes disfluent speech. Stuttering can lead to significant secondary effects, including negative self-perception and negative perception by others, anxiety, and occasionally depression. Childhood-onset fluency disorder affects 5% to 10% of preschoolers. Early identification of stuttering is important so that therapy can begin while compensatory changes to the brain can still occur and to minimize the chances of the patient
developing social anxiety, impaired social skills, maladaptive compensatory behaviors, and negative attitudes toward communication. However, stuttering may be persistent, even with early intervention, and affects about 1% of adults. In patients with persistent stuttering, speech therapy focuses on developing effective compensatory techniques and eliminating ineffective secondary behaviors. The role of family physicians includes facilitating early identification of children who stutter, arranging appropriate speech therapy, and providing support and therapy for patients experiencing psychosocial effects from stuttering. Finally, physicians can serve as advocates by making the clinic setting more comfortable for people who stutter and by educating teachers, coaches, employers, and others in the patient’s life about the etiology of stuttering and the specific challenges patients face.

**Database:** CINAHL

**Epilepsy: knowledge and attitudes of physiotherapists, occupational therapists, and speech therapists.**

**Author(s):** Hackel, Katharina; Neininger, Martina Patrizia; Kiess, Wieland; Bertsche, Thilo; Bertsche, Astrid

**Source:** European Journal of Pediatrics; Oct 2019; vol. 178 (no. 10); p. 1485-1491

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31375900

**Abstract:** Physiotherapists, occupational therapists, and speech therapists play a key role in the treatment of children with epilepsy. We performed a survey of therapists’ knowledge of and attitudes towards epilepsy in two regions of Germany, the city of Leipzig and the rural district of Zwickau. Therapists of 29/68 (43%) outpatient practices and 4/9 (44%) hospitals took part. In total, 195 therapists participated: 63 (32%) physiotherapists, 74 (38%) occupational therapists, and 58 (30%) speech therapist. In 65%, epilepsy was subject of vocational training. Of all therapists, 8% claimed they had not treated epilepsy patients so far. During professional life, 43% had witnessed a seizure. Of all therapists, 44% correctly assumed a seizure could result in death. During a seizure, 42% would perform the obsolete measure of placing something solid in the patient’s mouth, and 41% would administer a prescribed rescue medication. More information on epilepsy was requested by 92%. Conclusion: Most therapists treat patients with epilepsy, and almost half have already witnessed a seizure. Often, however, epilepsy is not subject of vocational training. The risk of a fatal outcome of a seizure is underestimated, and many therapists would perform obsolete measures. Knowledge of seizure management should be transmitted to therapists especially during vocational training.

**Database:** CINAHL

**Effectiveness of Intensive Rehabilitation Therapy on Functional Outcomes After Stroke: A Propensity Score Analysis Based on Japan Rehabilitation Database.**

**Author(s):** Kamo, Tomohiko; Momosaki, Ryo; Suzuki, Keisuke; Asahi, Ryoma; Azami, Masato; Ogihara, Hirofumi; Nishida, Yuusuke

**Source:** Journal of Stroke & Cerebrovascular Diseases; Sep 2019; vol. 28 (no. 9); p. 2537-2542

**Publication Date:** Sep 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31235378
Abstract: Aim: To examine the association of the amount of rehabilitation with functional gains of elderly stroke patients at a convalescent rehabilitation ward using propensity score analysis methods and the Japan Rehabilitation Database. Methods: This study was a retrospective cohort study. From the database, 6875 patients who were admitted to the convalescent rehabilitation wards with stroke were identified. After excluding 4586 patients, 2325 were eligible for the study. Intensive rehabilitation therapy (IRT) was defined as rehabilitation therapy of more than 15 hours per week by a physical therapist, an occupational therapist, and/or a speech therapist. Functional Independence Measure (FIM) gain, discharge rate to home, and FIM efficiency were examined using student’s t test and the χ2 test after inverse probability weighting (IPW). Results: IRT was provided to 862 patients (37.1%). The unadjusted data showed that patients in the IRT group had a longer hospital stay, more physical therapy, occupational therapy, and speech and language therapy. After adjustment for IPW, the baseline characteristics were found to be closely matched between the 2 groups. The IRT group showed significantly higher motor FIM gain, cognitive FIM gain, FIM gain, and discharge rate to home. Conclusions: The present study demonstrated that a longer rehabilitation time per week was associated with increased functional gain in elderly stroke patients at convalescent rehabilitation wards.

Database: CINAHL

Newly Recognized Stuttering in Three Young Children Following the Hojedk Earthquake in Iran.

Author(s): Jafari, Hamid; Mohamadi, Mahan; Haghjoo, Asghar; Heidari, Mohammad

Source: Prehospital & Disaster Medicine; Aug 2019; vol. 34 (no. 4); p. 456-457

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31237226

Abstract: Natural disasters, particularly earthquakes, in addition to physical complications, have always had psychological consequences for those affected by them. Stuttering is one of the psychological consequences of shocking events. After a 6.6 magnitude earthquake in Hojedk, Kerman, Iran, two 5-year-old children and a 4-year-old child with symptoms of discontinuous speech (including repeated sound, syllable, and words) were referred to the Kerman Welfare Organization’s rehabilitation center (Kerman, Iran). After history-taking, it became clear that the children had begun to stutter after the earthquake due to fear and stress. Considering the importance of negative emotional experiences in the onset of stuttering, it cannot really be said with certainty that the negative experience of the earthquake initiated the stuttering. Rather, the stuttering had not been present before the earthquake and appeared after the event. These cases indicate the importance of psychosocial support and speech therapy after disasters, especially for children that have higher psychological vulnerability than other age groups.

Database: CINAHL

How to improve eRehabilitation programs in stroke care? A focus group study to identify requirements of end-users.

Author(s): Wentink, Manon; van Bodegom-Vos, L.; Brouns, B.; Arwert, H.; Houdijk, S.; Kewalbansing, P.; Boyce, L.; Vliet Vlieland, T.; de Kloet, A.; Meesters, J.

Source: BMC Medical Informatics & Decision Making; Jul 2019; vol. 19 (no. 1)

Publication Date: Jul 2019

Publication Type(s): Academic Journal

PubMedID: 31349824
Abstract: Background: A user-centered design approach for eHealth interventions improves their effectiveness in stroke rehabilitation. Nevertheless, insight into requirements of end-users (patients/informal caregivers and/or health professionals) for eRehabilitation is lacking. The aim of this study was to identify end-user requirements for a comprehensive eHealth program in stroke rehabilitation. Methods: Eight focus groups were conducted to identify user requirements; six with patients/informal caregivers and two with health professionals involved in stroke rehabilitation (rehabilitation physicians, physiotherapists, occupational therapists, psychologists, team coordinators, speech therapist). The focus groups were audiotaped and transcribed in full. Direct content analysis was used to identify the end-user requirements for stroke eRehabilitation concerning three categories: accessibility, usability and content. Results: In total, 45 requirements for the accessibility, usability and content of a stroke eRehabilitation program emerged from the focus groups. Most requirements concerned content (27 requirements), followed by usability (12 requirements) and accessibility (6 requirements). Patients/informal caregivers and health professionals each identified 37 requirements, respectively, with 29 of them overlapping. Conclusions: Requirements between stroke patients/informal caregivers and health professionals differed on several aspects. Therefore, involving the perspectives of all end users in the design process of stroke eRehabilitation programs is needed to achieve a user-centered design. Trial Registration: The study was approved by the Medical Ethical Review Board of the Leiden University Medical Center [P15.281].

Database: CINAHL

Stuttering and gray matter morphometry: A population-based neuroimaging study in young children.

Author(s): Koenraads, S.P.C.; El Marroun, H.; Muetzel, R.L.; Chang, S.E.; Vernooij, M.W.; Baatenburg de Jong, R.J.; White, T.; Franken, M.C.; van der Schroeff, M.P.

Source: Brain & Language; Jul 2019; vol. 194 ; p. 121-131

Publication Date: Jul 2019

Publication Type(s): Academic Journal

PubMedID: 31085031

Abstract: Stuttering is a developmental speech disorder originating in early childhood. We aimed to replicate the association of stuttering and structural morphometry using a large, population-based prospective cohort, the Generation R Study, and explore the neurobiological mechanism of stuttering in children. Twenty-six children with a history of stuttering and 489 fluent speaking peers (ages 6-9) were included in the MRI sub-study. Cortical and subcortical regions of interest were analyzed using linear regression models. Compared to fluent speakers, children with a history of stuttering had less gray matter volume in the left inferior frontal gyrus and supplementary motor area. Exploratory surface-based brain analysis showed thinner cortex in the left inferior frontal gyrus, and in bilateral frontal and parietal areas. These findings corroborate previous studies that reported aberrant brain morphometry in speech motor and auditory regions in children who stutter. Future research is needed to explore the causal nature of this association.

Database: CINAHL
CANCER

In-Office Injection Pharyngoplasty for Velopharyngeal Insufficiency After Oropharyngeal Cancer Treatment.

Author(s): O’Dell, Karla; Hubanks, John

Source: Laryngoscope; Dec 2019; vol. 129 (no. 12); p. 2740-2743

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 30730561

Available at The Laryngoscope - from Wiley Online Library

Abstract: Velopharyngeal insufficiency (VPI) is the failure of the soft palate to meet the posterior pharyngeal wall during speech and swallowing. This retrospective case series describes the procedure of in-office injection pharyngoplasty and its use in the treatment of acquired VPI after treatment of oropharyngeal carcinoma. In the last 15 years, there has been a widely adopted practice of in-office injection laryngoplasty for glottic insufficiency.[21] Injection pharyngoplasty for VPI uses the same materials as vocal fold injections and is readily available in an otolaryngologist’s office. There are several reports in the literature of injection pharyngoplasty for stress VPI in wind musicians.[[13]] To our knowledge, this is the first description of pharyngeal injection augmentation being used for postoropharyngeal carcinoma treatment.

Database: CINAHL

Reconstruction of maxillectomy and midfacial defects using latissimus dorsi-scapular free flaps in a comprehensive cancer center.


Source: Oral Oncology; Dec 2019; vol. 99

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31678764

Abstract: Background: The standard of care for sinonasal malignancies is a large surgical resection followed by radiotherapy. Midfacial defects resulting from maxillectomy require a complex reconstruction procedure. Given their adaptability, chimeric flaps such as latissimus dorsi-scapular (LDS) free flaps appear to be a good option. Material& Methods: We performed a single-center retrospective study of consecutive patients with sinonasal cancers where a LDS free flap was used for reconstruction. We assessed the postoperative complications and the functional, aesthetic and oncologic outcomes. Results: Eighty-four patients were included. Primary tumors were staged as T4a in 68% of cases; 38.3% of the patients received induction chemotherapy and 82.7% received adjuvant radiotherapy. Based on our classification of midfacial and palatal defects, the majority of the patients (69%) had a type Ila with interruption of the three facial pillars. The orbital floor was removed in 55.9% of cases. The median follow-up was 45 months. Total flap necrosis with no possible revascularization occurred in 5.9% of cases. For the orbital reconstruction, a revision procedure was needed for necrosis and/or infection of the costal cartilage graft in eight cases (17%). More than 90% of the patients had no functional disorders regarding speaking, swallowing and chewing. Soft palate involvement was a prognostic factor of speech (p < 10^-4) and swallowing (p = .005) disorders. Dental rehabilitation was realized in 70.2% of the patients. No severe
complications were observed in the donor site, except for one seroma. Conclusion: A LDS free flap is a reliable technique for the reconstruction of complex midfacial defects.

Database: CINAHL

DYSPHONIA

Application of Ambulatory Phonation Monitoring (APM) in the measurement of daily speaking-time and voice intensity before and after cochlear implant in deaf adult patients.

Author(s): Mozzanica, Francesco; Schindler, Antonio; Iacona, Elisabetta; Ottaviani, Francesco

Source: Auris Nasus Larynx; Dec 2019; vol. 46 (no. 6); p. 844-852

Publication Date: Dec 2019

Publication Type(s): Academic Journal

Abstract: Objective: to evaluate the changes in daily voice production, analysed through the Ambulatory Phonation Monitoring (APM), and their relationship with Quality of Life (QOL) measurements in a group of profound deaf patients treated with Cochlear Implant (CI). Methods: A total of 12 consecutive post-lingual deaf patients (8 females and 4 males) treated with CI for bilateral severe-to-profound hearing loss were enrolled. Each patient was evaluated before and after 6 months of CI use. In particular, the daily voice production evaluation was performed using the APM, while QOL information were gathered from the Italian version of the Nijmegen Cochlear Implant Questionnaire (I-NCIQ). Results: Significant differences in the APM results obtained before and after CI were found. In particular, a significant decrease of the mean amplitude and a significant increase of the daily phonation time and percentage of phonation time were demonstrated after CI use in all the patients. A significant improvement in the I-NCIQ scores was demonstrated after CI use and significant correlations among I-NCIQ scores and the APM parameters were found. Conclusions: The APM could be useful in the evaluation of the benefits of cochlear implantation and may represents an indicator of deaf patient participation. In addition, the daily voice production's modifications after CI and their significant relations with the changes in QOL measurements could be useful in treatment planning as well as during pre- and post-operative counselling.

Database: CINAHL

The Impact of Nasalance on Cepstral Peak Prominence and Harmonics-to-Noise Ratio.

Author(s): Madill, Catherine; Nguyen, Duong Duy; Yick-Ning Cham, Kristie; Novakovic, Daniel; McCabe, Patricia; Yick-Ning Cham, Kristie

Source: Laryngoscope; Aug 2019; vol. 129 (no. 8)

Publication Date: Aug 2019

Publication Type(s): Academic Journal

Abstract: Objectives/hypothesis: Cepstral peak prominence (CPP) has been reported as a reliable measure of dysphonia and a preferred alternative to harmonics-to-noise ratio (HNR). However, CPP has been observed to be sensitive to articulatory variation and vocal intensity. The aim of this study...
was to examine the impact of nasalance on CPP and HNR of voice signals. It was hypothesized that increased nasalance would be associated with decreased CPP. Study Design: Within-subject correlation design.

Methods: Thirty vocally healthy female participants were recorded reading and producing a vowel in alternation with a nasal consonant while wearing a nasometer for calculation of nasalance. Recorded vowel, nasalized, and nasal segments of speech were used to calculate CPP using Analysis of Dysphonia in Speech and Voice software, and HNR and vocal intensity using Praat software. Results: Significant main effects of conditions were observed for CPP. CPP values decreased significantly when phonation changed from vowel to nasalized vowel and to nasal. There was correlation between CPP and nasalance and between CPP and intensity. HNR was slightly higher in the nasal condition than in vowel. There was a weak correlation between HNR and nasalance. No correlation was found between HNR and intensity. Conclusions: CPP is sensitive to changes in vocal tract configuration caused by nasalization as well as intensity, whereas HNR is not. Therefore, CPP may reflect the periodicity in source signal or the filtering effects of vocal tract. Further research is needed to clarify the application and interpretation of CPP in clinical practice. Level Of Evidence: 4. Laryngoscope, 129:E299-E304, 2019.

Database: CINAHL

**HYPOPLASIA**

**Fractional CO2 laser treatment for post-surgical lip scars in cleft lip and palate patients.**

**Author(s):** Jahanbin, Arezoo; Eslami, Neda; Layegh, Pouran; Saeidi, Mortez; Kazemi, Mostafa; Shahabi, Mostafa; Raisolsadat, Seyed Mohammad Ali

**Source:** Lasers in Medical Science; Oct 2019; vol. 34 (no. 8); p. 1699-1703

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31187297

**Abstract:** Post-surgical scars of cleft lip patients can lead to abnormal lip activity, which causes deficient maxillary growth. The aim of the present study was to assess the effect of laser therapy on the appearance and electrical activity of the upper lip in cleft lip and palate patients. Twelve patients with cleft lip and palate participated in this study. All patients had surgically repaired the cleft lip at the age of about 3-6 months. The lip scars underwent five fractional CO2 laser treatment sessions with a 4-week interval. Improvement of the quality of the skin texture was recorded according to quartile grading scale based on photographs taken before and 1 month after treatment. Patients' satisfaction survey was also recorded using Patient Scar Assessment Questionnaire (PSAQ) before and after laser therapy. Moreover, the EMG activity of the upper lip muscle was measured before and after treatment. According to dermatologists, the improvement of scar appearance ranged from 0.5 to 3, with a mean of 1.29 ± 0.86. Mean scores of the scar appearance (p < 0.001), symptoms (p = 0.003), and scar consciousness (p < 0.001) subscales of the PSAQ questionnaire had significantly increased after treatment. The EMG recording of the upper lip had decreased significantly after laser treatment at rest (p = 0.009) and maximum lip compression (p = 0.007). The fractional CO2 laser is an effective method for treating old scars of the cleft lip with a significant change in the opinion of patients about their scar appearance. Also, the therapy can help to reduce the EMG activity of the upper lip at rest.

**Database:** CINAHL

**HypernasalityNet: Deep recurrent neural network for automatic hypernasality detection.**
Abstract: Background: Cleft palate patients have inability to produce adequate velopharyngeal closure, which results in hypernasal speech. In clinic, hypernasal speech is assessed through subject assessment by speech language pathologists. Automatic hypernasal speech detection can provide aided diagnoses for speech language pathologists and clinicians. Objectives: This study aims to develop Long Short-Term Memory (LSTM) based Deep Recurrent Neural Network (DRNN) system to detect hypernasal speech from cleft palate patients, thus to provide aided diagnoses for clinical operation and speech therapy. Meanwhile, the feature mining and classification abilities of LSTM-DRNN system are explored. Methods: The utilized speech recordings are 14,544 vowels in Mandarin. Speech data is collected from 144 children (72 children with hypernasality and 72 controls) with the age of 5-12 years old. This work proposes a LSTM based DRNN system to achieve automatic hypernasal speech detection, since LSTM-DRNN can learn short-time dependences of hypernasal speech. The vocal tract based features are fed into LSTM-DRNN to achieve deep mining of features. To verify the feature mining ability of LSTM-DRNN, features projected by LSTM-DRNN are fed into shallow classifiers instead of the following two fully connected layers and a softmax layer. And the features without the projecting process of LSTM-DRNN are directly fed into shallow classifiers as a comparison. Hypernasality-sensitive vowels (/a/, /i/, and /u/) are analyzed for the first time. Results: This LSTM-DRNN based hypernasal speech detection method reaches higher detection accuracy than that using shallow classifiers, since LSTM-DRNN mines features through time axis and network depth simultaneously. The proposed LSTM-DRNN based hypernasality detection system reaches the highest accuracy of 93.35%. According to the analysis of hypernasality-sensitive vowels, the experimental result concludes that vowels /i/ and /u/ are the most sensitive vowels to hypernasal speech. Conclusions: The results show that LSTM-DRNN has robust feature mining ability and classification ability. This is the first work that applies the LSTM-DRNN technique to automatically detect hypernasality in cleft palate speech. The experimental results demonstrate the potential of deep learning on pathologist speech detection.

Database: CINAHL

Are predictors of reading impairment in isolated cleft similar to those in idiopathic dyslexia?

Abstract: Children with isolated cleft of the lip and/or palate (iCL/P) are at increased risk for reading impairment. The purpose of this study was to evaluate the impact of early risk factors (hearing, speech, and early literacy) on reading performance compared to unaffected participants with average (uAR) and impaired (uIR) reading. Reading achievement and early literacy skills were evaluated across three groups (27 iCL/P, 32 uAR, and 33 uIR). All participants were males, ages 8-11 years old. Those with history of head trauma/injury or major medical/mental health conditions were excluded. Group differences in achievement and early literacy skills were evaluated with ANCOVAs. Participants with impaired reading achievement (at or below 25th Percentile) were
identified. Medical record reviews for participants with iCL/P were conducted and audiology and speech ratings recorded. Correlations were calculated between achievement, early literacy, hearing, and speech. Participants with iCL/P had significantly elevated risk for reading impairment (37%); this risk differed by cleft type (0% iCL, 55% iCLP, and 60% iCP). Achievement for participants with iCP was similar to the uIR group. Early literacy risk resulted in lower achievement scores for both iCL/P and unaffected participants. History of inadequate hearing and speech did not significantly impact early literacy or achievement measures. There is a high risk of reading impairment for children with iCL/P—highest for those with iCLP and iCP. Early literacy predictors of reading outcome are similar for iCL/P and idiopathic dyslexia. Current screening and intervention methods are supported.

Database: CINAHL

Dental development in cleft lip and palate patients: A systematic review.

Author(s): Van Dyck, Julie; Cadenas de Llano-Pérula, Maria; Willems, Guy; Verdonck, Anna

Source: Forensic Science International; Jul 2019; vol. 300 ; p. 63-74

Publication Date: Jul 2019

Publication Type(s): Academic Journal

PubMedID: 31075568

Abstract: Objective: To investigate a potential delay in dental development in cleft patients compared with non-cleft patients. Search Methods: An unlimited electronic search was performed in four databases (PubMed, Embase, Lilacs and OpenGrey), from inception until October 2018. Full text articles concerning dental development or tooth eruption of non-syndromic children with cleft lip and/or palate (CL(P)) were included and reviewed. Case reports/series, review articles, articles in languages other than English, Dutch, French or Spanish and studies considering the eruption of deciduous teeth were excluded. Data extraction followed the PRISMA guidelines and study quality was assessed using MINORS. Results: The primary search resulted in 991 citations, of which 36 studies were finally analyzed. Most articles were retrospective studies based on panoramic radiographs. A delay in tooth development or eruption in CL(P) patients was found in 32 out of the 36 included articles. The amount of delay varied from 0.20 to 0.90 years, with a mean delay of 0.56 years for all types of clefts. In UCLP patients, a mean delay of 0.53 years was found. The lateral incisor at the cleft side was generally the most delayed. Conflicting results were found regarding the influence of sex and age. The amount of delay was reported to be independent of the cleft severity or type. The teeth near the cleft generally showed a greater delay than the teeth further away from it. Finally, an increased risk of asymmetrical tooth development in CL(P) patients was observed in all publications studying this aspect. 31 articles were comparative, 5 were non-comparative; with a median MINORS score of 16/24 (range 10-18) and 10/16 (range 8-10) for both groups respectively. Conclusions: The majority of the included articles reports a delay in dental development or tooth eruption in CL(P) patients compared to non-CL(P) patients. The obtained results could be important for forensic age estimation outcomes and for orthodontic and surgical treatment planning in CL(P) patients. The delay in tooth development implies a delay in start of orthodontic treatment. Moreover, CL(P) patients could falsely be considered to be a minor when applying the existing reference tables for dental age estimation. Systematic Review Registration: International prospective register of systematic reviews (PROSPERO: CRD42018082106).

Database: CINAHL
Written sentence context effects on acoustic-phonetic perception: fMRI reveals cross-modal semantic-perceptual interactions.

Author(s): Guediche, Sara; Zhu, Yuli; Minicucci, Domenic; Blumstein, Sheila E.

Source: Brain & Language; Dec 2019; vol. 199

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31586792

Abstract: This study examines cross-modality effects of a semantically-biased written sentence context on the perception of an acoustically-ambiguous word target identifying neural areas sensitive to interactions between sentential bias and phonetic ambiguity. Of interest is whether the locus or nature of the interactions resembles those previously demonstrated for auditory-only effects. FMRI results show significant interaction effects in right mid-middle temporal gyrus (RmMTG) and bilateral anterior superior temporal gyri (aSTG), regions along the ventral language comprehension stream that map sound onto meaning. These regions are more anterior than those previously identified for auditory-only effects; however, the same cross-over interaction pattern emerged implying similar underlying computations at play. The findings suggest that the mechanisms that integrate information across modality and across sentence and phonetic levels of processing recruit amodal areas where reading and spoken lexical and semantic access converge. Taken together, results support interactive accounts of speech and language processing.

Database: CINAHL

The effects of high variability training on voice identity learning.

Author(s): Lavan, Nadine; Knight, Sarah; Hazan, Valerie; McGettigan, Carolyn

Source: Cognition; Dec 2019; vol. 193

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31323377

Abstract: High variability training has been shown to benefit the learning of new face identities. In three experiments, we investigated whether this is also the case for voice identity learning. In Experiment 1a, we contrasted high variability training sets - which included stimuli extracted from a number of different recording sessions, speaking environments and speaking styles - with low variability stimulus sets that only included a single speaking style (read speech) extracted from one recording session (see Ritchie & Burton, 2017 for faces). Listeners were tested on an old/new recognition task using read sentences (i.e. test materials fully overlapped with the low variability training stimuli) and we found a high variability disadvantage. In Experiment 1b, listeners were trained in a similar way, however, now there was no overlap in speaking style or recording session between training sets and test stimuli. Here, we found a high variability advantage. In Experiment 2, variability was manipulated in terms of the number of unique items as opposed to number of unique speaking styles. Here, we contrasted the high variability training sets used in Experiment 1a with low variability training sets that included the same breadth of styles, but fewer unique items; instead, individual items were repeated (see Murphy, Ipser, Gaigg, & Cook, 2015 for faces). We found only weak evidence for a high variability advantage, which could be explained by stimulus-specific effects. We propose that high variability advantages may be particularly pronounced when listeners are required to generalise from trained stimuli to different-sounding, previously unheard stimuli. We discuss these findings in the context of mechanisms thought to underpin advantages for high variability training.

Database: CINAHL
The influence of oral health status on speech intelligibility, articulation and quality of life of older community-dwelling people.

Author(s): Langlois, Evelien; Desaeyer, Hannah; Petrovic, Mirko; Van Lierde, Kristiane; De Visschere, Luc

Source: Gerodontology; Dec 2019; vol. 36 (no. 4); p. 352-357

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31219659

Abstract: Objective: To investigate the impact of the oral health status on speech intelligibility, articulation and quality of life of older community-dwelling people. Background: To our knowledge, there have been no studies on this topic in patients aged 75 years or older. Material and Methods: Thirty outpatients of a university dental clinic (median [IQR] age of 77.00 [75-82] years) participated. The OHIP-14, a dental examination, a speech intelligibility study and an articulation examination were conducted. Results: Distortions of rhotacisms and sigmatisms were most common, followed by distortions of labiodentals and apicoalveolars. Seven participants (23%) required dental treatment. Distortions of rhotacisms were lowest in participants with loss of teeth in the posterior part of the maxilla and equal in participants with edentulous maxilla and loss of teeth in the anterior part of the maxilla (P = 0.014). Labiodental distortions were lowest in participants with loss of teeth in the posterior part of the maxilla, but were higher in participants with loss of teeth in the anterior part of the maxilla and highest in participants with an edentulous maxilla (P = 0.035). People with normal mouth opening had lower percentage of labiodental distortions than people with a reduced mouth opening (P = 0.05). The proportion of participants with inadequate denture hygiene and distortions of bilabials was 71.4% compared to 10.5% for participants with adequate denture hygiene (P = 0.005). Conclusion: Dentists must consider the impact of a denture on speech, but also should be aware of other oral health factors that influence the speech and quality of life of elders.

Database: CINAHL

A Physiologically Inspired Model for Solving the Cocktail Party Problem.

Author(s): Chou, Kenny F.; Dong, Junzi; Colburn, H. Steven; Sen, Kamal

Source: JARO - Journal of the Association for Research in Otolaryngology; Dec 2019; vol. 20 (no. 6); p. 579-593

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31392449

Available at Journal of the Association for Research in Otolaryngology : JARO - from Unpaywall

Abstract: At a cocktail party, we can broadly monitor the entire acoustic scene to detect important cues (e.g., our names being called, or the fire alarm going off), or selectively listen to a target sound source (e.g., a conversation partner). It has recently been observed that individual neurons in the avian field L (analog to the mammalian auditory cortex) can display broad spatial tuning to single targets and selective tuning to a target embedded in spatially distributed sound mixtures. Here, we describe a model inspired by these experimental observations and apply it to process mixtures of human speech sentences. This processing is realized in the neural spiking domain. It converts binaural acoustic inputs into cortical spike trains using a multi-stage model composed of a cochlear filter-bank, a midbrain spatial-localization network, and a cortical network. The output spike trains of
the cortical network are then converted back into an acoustic waveform, using a stimulus reconstruction technique. The intelligibility of the reconstructed output is quantified using an objective measure of speech intelligibility. We apply the algorithm to single and multi-talker speech to demonstrate that the physiologically inspired algorithm is able to achieve intelligible reconstruction of an "attended" target sentence embedded in two other non-attended masker sentences. The algorithm is also robust to masker level and displays performance trends comparable to humans. The ideas from this work may help improve the performance of hearing assistive devices (e.g., hearing aids and cochlear implants), speech-recognition technology, and computational algorithms for processing natural scenes cluttered with spatially distributed acoustic objects.

**Database**: CINAHL

**Shared premotor activity in spoken and written communication.**

**Author(s)**: Longcamp, Marieke; Hupé, Jean-Michel; Ruiz, Mathieu; Vayssière, Nathalie; Sato, Marc

**Source**: Brain & Language; Dec 2019; vol. 199

**Publication Date**: Dec 2019

**Publication Type(s)**: Academic Journal

**PubMedID**: 31586790

**Abstract**: The aim of the present study was to uncover a possible common neural organizing principle in spoken and written communication, through the coupling of perceptual and motor representations. In order to identify possible shared neural substrates for processing the basic units of spoken and written language, a sparse sampling fMRI acquisition protocol was performed on the same subjects in two experimental sessions with similar sets of letters being read and written and of phonemes being heard and orally produced. We found evidence of common premotor regions activated in spoken and written language, both in perception and in production. The location of those brain regions was confined to the left lateral and medial frontal cortices, at locations corresponding to the premotor cortex, inferior frontal cortex and supplementary motor area. Interestingly, the speaking and writing tasks also appeared to be controlled by largely overlapping networks, possibly indicating some domain general cognitive processing. Finally, the spatial distribution of individual activation peaks further showed more dorsal and more left-lateralized premotor activations in written than in spoken language.

**Database**: CINAHL

**Robot-based play-drama intervention may improve the narrative abilities of Chinese-speaking preschoolers with autism spectrum disorder.**

**Author(s)**: So, Wing-Chee; Cheng, Chun-Ho; Lam, Wan-Yi; Wong, Tiffany; Law, Wing-Wun; Huang, Ying; Ng, Ka-Ching; Tung, Hiu-Ching; Wong, Wing

**Source**: Research in Developmental Disabilities; Dec 2019; vol. 95

**Publication Date**: Dec 2019

**Publication Type(s)**: Academic Journal

**PubMedID**: 31670026

**Abstract**: Background: Children with autism spectrum disorder (ASD) have deficits in their narrative skills and gestural communication. Very few intervention studies have been conducted with the aim of improving these skills. Aims: We examined whether children with ASD who received the robot-based drama intervention had better narrative abilities and gestured more often than their peers who did not receive the intervention. Methods and Procedures: Preschool children were randomly assigned to the intervention group (N = 13) and waitlist control group (N = 13). Children in the
intervention group watched three robot dramas and engaged in roleplays with both robots and human experimenters. Children in both groups took the pre-tests, immediate post-tests, and, two week later, delayed post-tests, in which they narrated three stories. Outcomes and Results: There were significant improvements in various narrative measures, including narrative length, syntactic complexity, narrative structure, and cognitive inferences, in the intervention group. There was also an improvement in the average number of overall gestures per clause in this condition. These learning outcomes were maintained in the delayed post-test. These patterns were not found in the waitlist control group. Conclusions and Implications: A robot-based play-drama intervention can enhance the narrative abilities and gestural communication of children with ASD.

Database: CINAHL

Brain-behavior relationships in incidental learning of non-native phonetic categories.

Author(s): Luthra, Sahil; Fuhrmeister, Pamela; Molfese, Peter J.; Guediche, Sara; Blumstein, Sheila E.; Myers, Emily B.

Source: Brain & Language; Nov 2019; vol. 198

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31522094

Abstract: Research has implicated the left inferior frontal gyrus (LIFG) in mapping acoustic-phonetic input to sound category representations, both in native speech perception and non-native phonetic category learning. At issue is whether this sensitivity reflects access to phonetic category information per se or to explicit category labels, the latter often being required by experimental procedures. The current study employed an incidental learning paradigm designed to increase sensitivity to a difficult non-native phonetic contrast without inducing explicit awareness of the categorical nature of the stimuli. Functional MRI scans revealed frontal sensitivity to phonetic category structure both before and after learning. Additionally, individuals who succeeded most on the learning task showed the largest increases in frontal recruitment after learning. Overall, results suggest that processing novel phonetic category information entails a reliance on frontal brain regions, even in the absence of explicit category labels.

Database: CINAHL

Vocal responsiveness of preterm infants to maternal infant-directed speaking and singing during skin-to-skin contact (Kangaroo Care) in the NICU.

Author(s): Carvalho, Maria Eduarda S.; Justo, João M.R.M.; Gratier, Maya; Tomé, Teresa; Pereira, Esmeralda; Rodrigues, Helena

Source: Infant Behavior & Development; Nov 2019; vol. 57

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31421391

Abstract: Vocalizations of full-term newborns occur in a short latency time during the neonatal period. Contingent response time of preterm babies is still unknown. An increase of preterm babies' vocalizations following exposure to parental speech was also observed. Mothers and babies co-modulate their vocalizations in preterm dyads. Purpose: To observe temporal features of maternal and infants' vocalizations in speaking and singing conditions in preterm dyads. Methods: In a NICU mothers (N = 36) were invited to speak and to sing to their preterm infants during Kangaroo Care. Microanalysis of temporal units were performed with ELAN Software. Results and Conclusions:
Preterm infants vocalize less often while their mothers speak and sing than during baseline and their vocalizations tend to be more alternating in the speaking condition and more overlapping in the singing condition. It is also concluded that preterm infants take more time to respond to maternal speaking than to maternal singing.

Database: CINAHL

Interactions Between Item Set and Vocoding in Serial Recall.

Author(s): Bosen, Adam K.; Luckasen, Mary C.

Source: Ear & Hearing (01960202); Nov 2019; vol. 40 (no. 6); p. 1404-1417

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31033634

Abstract: Objectives: Serial recall of digits is frequently used to measure short-term memory span in various listening conditions. However, the use of digits may mask the effect of low quality auditory input. Digits have high frequency and are phonologically distinct relative to one another, so they should be easy to identify even with low quality auditory input. In contrast, larger item sets reduce listener ability to strategically constrain their expectations, which should reduce identification accuracy and increase the time and/or cognitive resources needed for identification when auditory quality is low. This diminished accuracy and increased cognitive load should interfere with memory for sequences of items drawn from large sets. The goal of this work was to determine whether this predicted interaction between auditory quality and stimulus set in short-term memory exists, and if so, whether this interaction is associated with processing speed, vocabulary, or attention.

Design: We compared immediate serial recall within young adults with normal hearing across unprocessed and vocoded listening conditions for multiple stimulus sets. Stimulus sets were lists of digits (1 to 9), consonant-vowel-consonant (CVC) words (chosen from a list of 60 words), and CVC nonwords (chosen from a list of 50 nonwords). Stimuli were unprocessed or vocoded with an eight-channel noise vocoder. To support interpretation of responses, words and nonwords were selected to minimize inclusion of multiple phonemes from within a confusion cluster. We also measured receptive vocabulary (Peabody Picture Vocabulary Test [PPVT-4]), sustained attention (test of variables of attention [TOVA]), and repetition speed for individual items from each stimulus set under both listening conditions.

Results: Vocoding stimuli had no impact on serial recall of digits, but reduced memory span for words and nonwords. This reduction in memory span was attributed to an increase in phonological confusions for nonwords. However, memory span for vocoded word lists remained reduced even after accounting for common phonetic confusions, indicating that lexical status played an additional role across listening conditions. Principal components analysis found two components that explained 84% of the variance in memory span across conditions. Component one had similar load across all conditions, indicating that participants had an underlying memory capacity, which was common to all conditions. Component two was loaded by performance in the vocoded word and nonword conditions, representing the sensitivity of memory span to vocoding of these stimuli. The order in which participants completed listening conditions had a small effect on memory span that could not account for the effect of listening condition. Repetition speed was fastest for digits, slower for words, and slowest for nonwords. On average, vocoding slowed repetition speed for all stimuli, but repetition speed was not predictive of individual memory span. Vocabulary and attention showed no correlation with memory span.

Conclusions: Our results replicated previous findings that low quality auditory input can impair short-term memory, and demonstrated that this impairment is sensitive to stimulus set. Using multiple stimulus sets in degraded listening conditions can isolate memory capacity (in digit span) from impaired item
identification (in word and nonword span), which may help characterize the relationship between memory and speech recognition in difficult listening conditions.

**Database:** CINAHL

**Transfer of sensorimotor learning reveals phoneme representations in preliterate children.**

**Author(s):** Caudrelier, Tiphaine; Ménard, Lucie; Perrier, Pascal; Schwartz, Jean-Luc; Gerber, Silvain; Vidou, Camille; Rochet-Capellan, Amélie

**Source:** Cognition; Nov 2019; vol. 192

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31252327

**Abstract:** Reading acquisition is strongly intertwined with phoneme awareness that relies on implicit phoneme representations. We asked whether phoneme representations emerge before literacy. We recruited two groups of children, 4 to 5-year-old preschoolers (N = 29) and 7 to 8-year-old schoolchildren (N = 24), whose phonological awareness was evaluated, and one adult control group (N = 17). We altered speakers’ auditory feedback in real time to elicit persisting pronunciation changes, referred to as auditory-motor adaptation or learning. Assessing the transfer of learning at phoneme level enabled us to investigate the developmental time-course of phoneme representations. Significant transfer at phoneme level occurred in preschoolers, as well as schoolchildren and adults. In addition, we found a relationship between auditory-motor adaptation and phonological awareness in both groups of children. Overall, these results suggest that phoneme representations emerge before literacy acquisition, and that these sensorimotor representations may set the ground for phonological awareness.

**Database:** CINAHL

**Delayed development of phonological constancy in toddlers at family risk for dyslexia.**

**Author(s):** Kalashnikova, Marina; Goswami, Usha; Burnham, Denis

**Source:** Infant Behavior & Development; Nov 2019; vol. 57

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31207365

**Abstract:** Phonological constancy refers to infants' ability to disregard variations in the phonetic realisation of speech sounds that do not indicate lexical contrast, e.g., when listening to accented speech. In typically-developing infants, this ability develops between 15- and 19-months of age, coinciding with the consolidation of infants' native phonological competence and vocabulary growth. Here we investigated the developmental time course of phonological constancy in infants at family risk for developmental dyslexia, using a longitudinal design. Developmental dyslexia is a disorder affecting the acquisition of reading and spelling skills, and it also affects early auditory processing, speech perception, and lexical acquisition. Infants at-risk and not at-risk for dyslexia, based on a family history of dyslexia, participated when they were 15-, 19-, and 26-months of age. Phonological constancy was indexed by comparing at-risk and not-at-risk infants' ability to recognise familiar words in two preferential looking tasks: (1) a task using words presented in their native accent, and (2) a task using words presented in a non-native accent. We expected a delay in phonological constancy for the at-risk infants. As predicted, in the non-native accent task, not at-risk infants recognised familiar words by 19 months, but at-risk infants did not. The control infants thus
exhibited phonological constancy. By 26 months, at-risk toddlers did show successful word recognition in the native accent task. However, for the non-native accent task at 26 months, neither at-risk nor control infants showed familiar word recognition. These findings are discussed in terms of the impact of family risk for dyslexia on toddlers’ consolidation of early phonological and lexical skills.

**Database:** CINAHL

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**Infant-adult vocal interaction dynamics depend on infant vocal type, child-directedness of adult speech, and timeframe.**

**Author(s):** Pretzer, Gina M.; Lopez, Lukas D.; Walle, Eric A.; Warlaumont, Anne S.

**Source:** Infant Behavior & Development; Nov 2019; vol. 57

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31100586

**Abstract:** This study explored the temporal contingencies between infant and adult vocalizations as a function of the type of infant vocalization, whether adult caregivers' vocalizations were infant-directed or other-directed, and the timescale of analysis. We analyzed excerpts taken from day-long home audio recordings that were collected from nineteen 12- to 13-month-old American infants and their caregivers using the LENA system. Three 5-minute sections having high child vocalization rates were identified within each recording and coded by trained researchers. Infant and adult vocalizations were sequenced and defined as contingent if they occurred within 1 s, 2 s, or 5 s of each other. When using 1 s or 2 s definitions of temporal adjacency, infant vocalizations generally predicted subsequent infant-directed adult vocalizations. A reflexive vocalization (i.e. a cry or a laugh) was the strongest predictor. Likewise, within 1-2 s timeframes, infant-directed adult speech generally predicted infant vocalizations with reflexive vocalizations being particularly predictive. Infant vocalizations predicted fewer subsequent other-directed adult vocalizations and were less likely following other-directed adult vocalizations when considering up to 5 s lags. This suggests an understudied communicative role for infants of non-infant-directed adult speech. These results demonstrate the importance of timescale in studying infant-adult interactions, support the communicative significance of reflexive infant vocalizations and other-directed adult speech in addition to more commonly studied vocalization types, and highlight the challenges of determining direction(s) of influence when using only two-event sequences.

**Database:** CINAHL

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**Speech predictability can hinder communication in difficult listening conditions.**

**Author(s):** Marrufo-Pérez, Miriam I.; Eustaquio-Martín, Almudena; Lopez-Poveda, Enrique A.

**Source:** Cognition; Nov 2019; vol. 192

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31254890

**Abstract:** In difficult listening situations, such as in noisy environments, one would expect speech intelligibility to improve over time thanks to noise adaptation and/or to speech predictability facilitating the recognition of upcoming words. We tested this possibility by presenting normal-hearing human listeners (N = 100; 70 women) with sentences and measuring word recognition as a function of word position in a sentence. Sentences were presented in quiet and in competition with
various masker sounds at individualized levels where listeners had 50% probability of recognizing a full sentence. Contrary to expectations, recognition was best for the first word and gradually deteriorated with increasing word position along the sentence. The worsening in recognition was unlikely due to differences in word audibility or word type and was uncorrelated with age or working memory capacity. Using a probabilistic model of word recognition, we show that the worsening effect probably occurs because misunderstandings generate inaccurate predictions that outweigh the benefits from accurate predictions. Analyses also revealed that predictions overruled the potential benefits from noise adaptation. We conclude that although speech predictability can facilitate sentence recognition, it can also result in declines in word recognition as the sentence unfolds because of inaccuracies in prediction.

Database: CINAHL

Routine Language: Speech Directed to Infants During Home Activities.
Author(s): Tamis-LeMonda, Catherine S.; Custode, Stephanie; Kuchirko, Yana; Escobar, Kelly; Lo, Tiffany; Tamis-LeMonda, Catherine S
Source: Child Development; Nov 2019; vol. 90 (no. 6); p. 2135-2152
Publication Date: Nov 2019
Publication Type(s): Academic Journal
PubMedID: 29766498
Available at Child development - from Wiley Online Library

Abstract: Everyday activities are replete with contextual cues for infants to exploit in the service of learning words. Nelson's (1985) script theory guided the hypothesis that infants participate in a set of predictable activities over the course of a day that provide them with opportunities to hear unique language functions and forms. Mothers and their firstborn 13-month-old infants (N = 40) were video-recorded during everyday activities at home. Transcriptions and coding of mothers' speech to infants-time-locked to activities of feeding, grooming, booksharing, object play, and transition-revealed that the amount, diversity, pragmatic functions, and semantic content of maternal language systematically differed by activity. The activities of everyday life shape language inputs to infants in ways that highlight word meaning.

Database: CINAHL

The mediating role of joint attention in the relationship between motor skills and receptive and expressive language in siblings at risk for autism spectrum disorder.
Author(s): Bruyneel, E.; Demurie, E.; Warreyn, P.; Roeyers, H.
Source: Infant Behavior & Development; Nov 2019; vol. 57
Publication Date: Nov 2019
Publication Type(s): Academic Journal
PubMedID: 31541867

Abstract: Language problems are highly prevalent in younger siblings of children with autism spectrum disorder (HR-sibs), yet little is known about early predictors. There is growing evidence that motor and language development are linked and this connection might be mediated by joint attention. Developmental changes in motor abilities change how children interact with objects and people (e.g., by showing), which may influence language development. This association has however not yet been studied in HR-sibs. The interrelationship between motor, joint attention and language skills was explored in younger siblings of typically developing children (LR-sibs, N = 31) and HR-sibs
(N = 32). In both groups, motor skills (composite of fine and gross motor skills) at 10 months influenced receptive and expressive language at 36 months directly and indirectly through joint attention at 14 months. Group status moderated this direct and indirect effect with mainly significant effects in HR-sibs. This indicates that lower motor skills can have cascading effects on joint attention and language in HR-sibs. Consequently, assessment of early motor skills in HR-sibs might hold promise for early identification of motor difficulties but can also be indicative of language difficulties later in life, especially when difficulties with joint attention are also present.

Database: CINAHL

**Stable auditory processing underlies phonological awareness in typically developing preschoolers.**

**Author(s):** Bonacina, Silvia; Otto-Meyer, Sebastian; Krizman, Jennifer; White-Schwoch, Travis; Nicol, Trent; Kraus, Nina

**Source:** Brain & Language; Oct 2019; vol. 197

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31374431

**Abstract:** Sound processing is an important scaffold for early language acquisition. Here we investigate its relationship to three components of phonological processing in young children (~age 3): Phonological Awareness (PA), Phonological Memory (PM), and Rapid Automatized Naming (RAN). While PA is believed to hinge upon consistency of sound processing to distinguish and manipulate word features, PM relies on an internal store of the sounds of language and RAN relies on fluid production of those sounds. Given the previously demonstrated link between PA and the auditory system, we hypothesized that only this component would be associated with auditory neural stability. Moreover, we expected relationships to manifest at early ages because additional factors may temper the association in older children. We measured across-trial stability of the frequency-following response, PA, PM, and RAN longitudinally in twenty-seven children. Auditory neural stability at age ~3 years exclusively predicts PA, but this relationship vanishes in older children.

Database: CINAHL

**Tone slips in Cantonese: Evidence for early phonological encoding.**

**Author(s):** Alderete, John; Chan, Queenie; Yeung, H. Henny

**Source:** Cognition; Oct 2019; vol. 191

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

** PubMedID:** 31302321

**Available at Cognition - from Unpaywall**

**Abstract:** This article examines speech errors in Cantonese with the aim of fleshing out a larger speech production architecture for encoding phonological tone. A corpus was created by extracting 2462 speech errors, including 668 tone errors, from audio recordings of natural conversations. The structure of these errors was then investigated in order to distinguish two contemporary approaches to tone in speech production. In the tonal frames account, tone is encoded like metrical stress, represented in abstract structural frames for a word. Because tone cannot be mis-selected in tonal frames, tone errors are expected to be rare and non-contextual, as observed with stress. An alternative is that tone is actively selected in phonological encoding like phonological segments. This approach predicts that tone errors will be relatively common and exhibit the contextual patterns
observed with segments, like perseveration and anticipation. In our corpus, tone errors are the second most common type of error, and the majority of errors exhibit contextual patterns that parallel segmental errors. Building on prior research, a two-stage model of phonological tone encoding is proposed, following the patterns seen in tone errors: Tone is phonologically selected concurrently with segments, but then sequentially assigned after segments to a syllable.

**Database:** CINAHL

**Comparative assessment and monitoring of deterioration of articulatory organs using subjective and objective tools among patients with amyotrophic lateral sclerosis.**

**Author(s):** Pawlukowska, Wioletta; Baumert, Bartłomiej; Gołąb-Janowska, Monika; Meller, Agnieszka; Machowska-Sempruch, Karolina; Wełnicka, Agnieszka; Paczkowska, Edyta; Rotter, Iwona; Machaliński, Bogusław; Nowacki, Przemysław

**Source:** BMC Neurology; Oct 2019; vol. 19 (no. 1)

**Publication Date:** Oct 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31629403

Available at [BMC neurology](https://bmcneurology.biomedcentral.com/articles/10.1186/s12880-019-0455-3) - from BioMed Central

Available at [BMC neurology](https://bmcneurology.biomedcentral.com/articles/10.1186/s12880-019-0455-3) - from Europe PubMed Central - Open Access

Available at [BMC neurology](https://bmcneurology.biomedcentral.com/articles/10.1186/s12880-019-0455-3) - from EBSCO (MEDLINE Complete)

Available at [BMC neurology](https://bmcneurology.biomedcentral.com/articles/10.1186/s12880-019-0455-3) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC neurology](https://bmcneurology.biomedcentral.com/articles/10.1186/s12880-019-0455-3) - from Unpaywall

**Abstract:** Background: Amyotrophic lateral sclerosis (ALS) is a fatal degenerative disease of a rapid course. In 25% of ALS sufferers, speech disorders occur as prodromal symptoms of the disease. Impaired communication affects physical health and has a negative impact on mental and emotional condition. In this study, we assessed which domains of speech are particularly affected in ALS. Subsequently, we estimated possible correlations between the ALS patients' subjective perception of their speech quality and an objective assessment of the speech organs carried out by an expert. Methods: The study group consisted of 63 patients with sporadic ALS. The patients were examined for articulatory functions by means of Voice Handicap Index (VHI) and the Frenchay Dysarthria Assessment (FDA). Results: On the basis of the VHI scores, the entire cohort was divided into 2 groups: group I (40 subjects) with mild speech impairment, and group II (23 subjects) displaying moderate and profound speech deficits. In an early phase of ALS, changes were typically reported in the tongue, lips and soft palate. The FDA and VHI-based measurements revealed a high, positive correlation between the objective and subjective evaluation of articulation quality. Conclusions: Deterioration of the articulatory organs resulted in the reduction of social, physical and emotional functioning. The highly positive correlation between the VHI and FDA scales seems to indicate that the VHI questionnaire may be a reliable, self-contained tool for monitoring the course and progression of speech disorders in ALS. Trial Registration: NCT02193893.

**Database:** CINAHL

**Control of speech and voice in cochlear implant patients.**

**Author(s):** Gautam, Anirudh; Naples, James G.; Eliades, Steven J.

**Source:** Laryngoscope; Sep 2019; vol. 129 (no. 9); p. 2158-2163

**Publication Date:** Sep 2019
Abstract: Objective: Hearing plays an important role in the learning and production of speech, but the benefits of cochlear implantation for such vocal control are unclear. Here, we present a perspective and review of recent work on the control of speech and voice following cochlear implantation. We further discuss insights provided on the mechanisms of normal vocal control and implications for future rehabilitative approaches. Data Sources: Peer-reviewed articles on speech and voice production in cochlear implant patients were identified from PUBMED. Relevant articles were supplemented with selected publications describing normal vocal control mechanisms and behaviors. Review Methods: Publications that discussed speech and voice outcomes following cochlear implantation were chosen, with a focus on those presenting measurements of specific speech or voice parameters. Results: Recent studies demonstrate that hearing restoration by cochlear implantation has significant effects on many aspects of voice and speech production. These include changes in vocal pitch and loudness, as well as improved control of both vowels and consonants. Despite these improvements, however, the speech of many implant recipients remains abnormal as compared to normal hearing individuals. Such differences likely result from the impoverished auditory feedback provided by the implant. Conclusions: Cochlear implants provide valuable insights into the role of hearing in vocal production. Although implants improve vocal production for most patients, there remains considerable room for future study and therapeutic improvement. Laryngoscope, 129:2158-2163, 2019.

Database: CINAHL

Effects of Phantom Electrode Stimulation on Vocal Production in Cochlear Implant Users.

Author(s): Caldwell, Meredith T.; Jiradejvong, Patpong; Limb, Charles J.

Source: Ear & Hearing (01960202); Sep 2019; vol. 40 (no. 5); p. 1127-1139

Publication Date: Sep 2019

Publication Type(s): Academic Journal

Abstract: Objectives: Cochlear implant (CI) users suffer from a range of speech impairments, such as stuttering and vocal control of pitch and intensity. Though little research has focused on the role of auditory feedback in the speech of CI users, these speech impairments could be due in part to limited access to low-frequency cues inherent in CI-mediated listening. Phantom electrode stimulation (PES) represents a novel application of current steering that extends access to low frequencies for CI recipients. It is important to note that PES transmits frequencies below 300 Hz, whereas Baseline does not. The objective of this study was to explore the effects of PES on multiple frequency-related characteristics of voice production. Design: Eight postlingually deafened, adult Advanced Bionics CI users underwent a series of vocal production tests including Tone Repetition, Vowel Sound Production, Passage Reading, and Picture Description. Participants completed all of these tests twice: once with PES and once using their program used for everyday listening (Baseline). An additional test, Automatic Modulation, was included to measure acute effects of PES and was completed only once. This test involved switching between PES and Baseline at specific time intervals in real time as participants read a series of short sentences. Finally, a subjective Vocal Effort measurement was also included. Results: In Tone Repetition, the fundamental frequencies (F0) of tones produced using PES and the size of musical intervals produced using PES were significantly more accurate (closer to the target) compared with Baseline in specific gender, target tone range, and target tone type testing conditions. In the Vowel Sound Production task, vowel formant profiles
produced using PES were closer to that of the general population compared with those produced using Baseline. The Passage Reading and Picture Description task results suggest that PES reduces measures of pitch variability (F0 standard deviation and range) in natural speech production. No significant results were found in comparisons of PES and Baseline in the Automatic Modulation task nor in the Vocal Effort task. Conclusions: The findings of this study suggest that usage of PES increases accuracy of pitch matching in repeated sung tones and frequency intervals, possibly due to more accurate F0 representation. The results also suggest that PES partially normalizes the vowel formant profiles of select vowel sounds. PES seems to decrease pitch variability of natural speech and appears to have limited acute effects on natural speech production, though this finding may be due in part to paradigm limitations. On average, subjective ratings of vocal effort were unaffected by the usage of PES versus Baseline.

**Database:** CINAHL

**High-Variability Sentence Recognition in Long-Term Cochlear Implant Users: Associations With Rapid Phonological Coding and Executive Functioning.**

**Author(s):** Smith, Gretchen N. L.; Pisoni, David B.; Kronenberger, William G.

**Source:** Ear & Hearing (01960202); Sep 2019; vol. 40 (no. 5); p. 1149-1161

**Publication Date:** Sep 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30601227

**Abstract:** Objectives: The objective of the present study was to determine whether long-term cochlear implant (CI) users would show greater variability in rapid phonological coding skills and greater reliance on slow-effortful compensatory executive functioning (EF) skills than normal-hearing (NH) peers on perceptually challenging high-variability sentence recognition tasks. We tested the following three hypotheses: First, CI users would show lower scores on sentence recognition tests involving high speaker and dialect variability than NH controls, even after adjusting for poorer sentence recognition performance by CI users on a conventional low-variability sentence recognition test. Second, variability in fast-automatic rapid phonological coding skills would be more strongly associated with performance on high-variability sentence recognition tasks for CI users than NH peers. Third, compensatory EF strategies would be more strongly associated with performance on high-variability sentence recognition tasks for CI users than NH peers. Design: Two groups of children, adolescents, and young adults aged 9 to 29 years participated in this cross-sectional study: 49 long-term CI users (≥7 years) and 56 NH controls. All participants were tested on measures of rapid phonological coding (Children’s Test of Nonword Repetition), conventional sentence recognition (Harvard Sentence Recognition Test), and two novel high-variability sentence recognition tests that varied the indexical attributes of speech (Perceptually Robust English Sentence Test Open-set test and Perceptually Robust English Sentence Test Open-set test-Foreign Accented English test). Measures of EF included verbal working memory (WM), spatial WM, controlled cognitive fluency, and inhibition concentration. Results: CI users scored lower than NH peers on both tests of high-variability sentence recognition even after conventional sentence recognition skills were statistically controlled. Correlations between rapid phonological coding and high-variability sentence recognition scores were stronger for the CI sample than for the NH sample even after basic sentence perception skills were statistically controlled. Scatterplots revealed different ranges and slopes for the relationship between rapid phonological coding skills and high-variability sentence recognition performance in CI users and NH peers. Although no statistically significant correlations between EF strategies and sentence recognition were found in the CI or NH sample after use of a conservative Bonferroni-type correction, medium to high effect sizes for correlations between verbal WM and sentence recognition in the CI sample suggest that further investigation of this relationship.
Conclusions: These findings provide converging support for neurocognitive models that propose two channels for speech-language processing: a fast-automatic channel that predominates whenever possible and a compensatory slow-effortful processing channel that is activated during perceptually-challenging speech processing tasks that are not fully managed by the fast-automatic channel (ease of language understanding, framework for understanding effortful listening, and auditory neurocognitive model). CI users showed significantly poorer performance on measures of high-variability sentence recognition than NH peers, even after simple sentence recognition was controlled. Nonword repetition scores showed almost no overlap between CI and NH samples, and correlations between nonword repetition scores and high-variability sentence recognition were consistent with greater reliance on engagement of fast-automatic phonological coding for high-variability sentence recognition in the CI sample than in the NH sample. Further investigation of the verbal WM-sentence recognition relationship in CI users is recommended. Assessment of fast-automatic phonological processing and slow-effortful EF skills may provide a better understanding of speech perception outcomes in CI users in the clinical setting.

**Database:** CINAHL

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**Chunking of phonological units in speech sequencing.**

**Author(s):** Segawa, Jennifer; Masapollo, Matthew; Tong, Mona; Smith, Dante J.; Guenther, Frank H.

**Source:** Brain & Language; Aug 2019; vol. 195; p. 104636-104636

**Publication Date:** Aug 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31202179

**Abstract:** Efficient speech communication requires rapid, fluent production of phoneme sequences. To achieve this, our brains store frequently occurring subsequences as cohesive "chunks" that reduce phonological working memory load and improve motor performance. The current study used a motor-sequence learning paradigm in which the generalization of two performance gains (utterance duration and errors) from practicing novel phoneme sequences was used to infer the nature of these speech chunks. We found that performance improvements in duration from practicing syllables with non-native consonant clusters largely generalized to new syllables that contained those clusters. Practicing the whole syllable, however, resulted in larger performance gains in error rates compared to practicing just the consonant clusters. Collectively, these findings are consistent with theories of speech production that posit the consonant cluster as a fundamental unit of phonological working memory and speech sequencing as well as those positing the syllable as a fundamental unit of motor programming.

**Database:** CINAHL

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**Dysphagia in Parkinson's Disease Improves with Vocal Augmentation.**

**Author(s):** Howell, R. J.; Webster, H.; Kissela, E.; Gustin, R.; Kaval, F.; Klaben, B.; Khosla, S.

**Source:** Dysphagia (0179051X); Dec 2019; vol. 34 (no. 6); p. 862-868

**Publication Date:** Dec 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30694413

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**Swallowing**

**Dysphagia in Parkinson's Disease Improves with Vocal Augmentation.**

**Author(s):** Howell, R. J.; Webster, H.; Kissela, E.; Gustin, R.; Kaval, F.; Klaben, B.; Khosla, S.

**Source:** Dysphagia (0179051X); Dec 2019; vol. 34 (no. 6); p. 862-868

**Publication Date:** Dec 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30694413
Abstract: While voice-related disorders in Parkinson's disease (PD) are commonly discussed in the literature, dysphagia in PD is less widely published. Vocal fold augmentation, including injection laryngoplasty (IL), is a well-established treatment for glottal insufficiency (Cates et al. in Otolaryngol Head Neck Surg 155(3):454-457, 2016). This study aimed to observe the effects of IL in PD patients with vocal bowing, with or without therapy, on glottic closure and patient-reported dysphagia outcomes. The study design was based on retrospectively collected database and cohort-case series. PD patients selected for retrospective review over a 2-year period were referred and evaluated in the Voice, Swallowing, and Airway multidisciplinary clinic by speech language pathologist and laryngologist, and were undergoing IL. Charts were reviewed for age, gender, Body Mass Index (BMI), onset of PD, and Movement Disorders Society-Unified Parkinson's Disease Rating Scale Part 3 (MDS-UPDRS) scoring. We compared pre/postoperatively (> 1 < 3 months) using validated patient-reported outcome tools: Reflux Symptom Index (RSI), Glottal Function Index (GFI), Eating Assessment Tool-10 (EAT), and stroboscopic examinations. The study included 14 patients undergoing 22 IL or 1.6 IL/patient: mean age 70 years (63-80), 100% male, and BMI 25.9 ± 4.3 (mean ± SD). MDS-UPDRS scoring 33 ± 20 (moderate severity), with time between PD diagnosis and IL 8 ± 10 years. All patients had pre- and post-stroboscopic examinations; however, only 4:14 underwent formal swallowing evaluation. Overall, 14 IL patients improved on patient-reported measures (ΔRSI = 4; ΔGFI = 3; ΔEAT = 4). Based on the findings of the study, we conclude that PD is a progressive neurodegenerative condition with dysphagia. The presented pilot data suggest that IL may be considered as a beneficial adjunct for PD patients with glottal insufficiency. LEVEL OF EVIDENCE: 4.

Database: CINAHL

The Effect of Four-Channel Neuromuscular Electrical Stimulation on Swallowing Kinematics and Pressures: A Pilot Study.

Author(s): Park, Donghwi; Suh, Jee Hyun; Kim, Hayoung; Ryu, Ju Seok

Source: American Journal of Physical Medicine & Rehabilitation; Dec 2019; vol. 98 (no. 12); p. 1051-1059

Publication Date: Dec 2019

Publication Type(s): Academic Journal

Abstract: Supplemental digital content is available in the text. Objective: The purpose of this study was to evaluate the effectiveness of the sequential four-channel neuromuscular electrical stimulation system. Design: As a prospective case-control study, ten healthy subjects and ten patients with dysphagia were prospectively enrolled. Swallowing with and without sequential four-channel neuromuscular electrical stimulation (suprahyoid, infrahyoid muscles) was evaluated via videofluoroscopic swallowing study and high-resolution manometry. Results: Results showed that the sequential four-channel neuromuscular electrical stimulation significantly improved the videofluoroscopic dysphagia scale during thick-fluid swallowing in patients with dysphagia. Furthermore, the kinematic analysis of videofluoroscopic swallowing study showed a tendency that neuromuscular electrical stimulation reduced duration of hyoid bone movement during thin- or thick-fluid swallowing. The high-resolution manometry parameters—maximal pressure of velopharynx, tongue base, cricopharyngeal pressure, minimal upper esophageal sphincter pressure, area of velopharynx, upper esophageal sphincter activity time, and duration of nadir upper esophageal sphincter—during thin-fluid swallowing were significantly improve in both groups compared with the high-resolution manometry parameters without neuromuscular electrical stimulation. Conclusion: The sequential four-channel neuromuscular electrical stimulation may help improve the parameters of videofluoroscopic swallowing study, kinematic analysis of the hyoid bone.
movement, and high-resolution manometry during swallowing. Further investigations are needed to better examine the effects of neuromuscular electrical stimulation in patients with dysphagia.

**Database:** CINAHL

**Vocal Fold Paralysis/Paresis as a Marker for Poor Swallowing Outcomes After Thoracic Surgery Procedures.**

**Author(s):** Crowson, Matthew G.; Tong, Betty C.; Lee, Hui-Jie; Song, Yao; Misono, Stephanie; Jones, Harrison N.; Cohen, Seth

**Source:** Dysphagia (0179051X); Dec 2019; vol. 34 (no. 6); p. 904-915

**Publication Date:** Dec 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30798360

**Abstract:** (1) To examine the association between vocal fold paresis/paralysis (VFP) and poor swallowing outcomes in a thoracic surgery cohort at the population level, and (2) to assess utilization of ENT/speech-language pathology intervention in these cases. The National Inpatient Sample (NIS) represents a 20% stratified sample of discharges from US hospitals. Using ICD-9 codes, discharges undergoing general thoracic surgical procedures between 2008 and 2013 were identified in the NIS. Subcohorts of discharges with VFP and those who utilized ENT/SLP services were also identified. Weighted logistic regression models were used to compare binary outcomes such as dysphagia, aspiration pneumonia, and other complications; generalized linear models with generalized estimating equations (GEE) were used to compare total hospital costs and length of stay (LOS). We identified a weighted estimate of 673,940 discharges following general thoracic surgery procedures. The weighted frequency of VFP was 3738 (0.55%). Compared to those without VFP, patients who discharged with VFP had increased odds of dysphagia (6.56, 95% CI 5.07-8.47), aspiration pneumonia (2.54, 95% CI 1.74-3.70), post-operative tracheotomy (3.10, 95% CI 2.16-4.45), and gastrostomy tube requirement (2.46, 95% CI 1.66-3.64). Discharges with VFP also had a longer length of stay and total hospital costs. Of the discharges with VFP, 15.7% received ENT/SLP intervention. VFP after general thoracic procedures is associated with negative swallowing-related health outcomes and higher costs. Despite these negative impacts, most patients with VFP do not receive ENT/SLP intervention, identifying a potential opportunity for improving adverse swallowing-related outcomes.

**Database:** CINAHL

**Effect of Transcutaneous Vagus Nerve Stimulation in Dysphagia After Lateral Medullary Infarction: A Case Report.**

**Author(s):** Ying Yuan; Jie Wang; Dongyu Wu; Dahua Zhang; Weiqun Song

**Source:** American Journal of Speech-Language Pathology; No 2019; vol. 28 (no. 4); p. 1381-1387

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**Available at** American Journal of Speech-Language Pathology - from ProQuest (Health Research Premium) - NHS Version

**Abstract:** Purpose: Severe dysphagia with weak pharyngeal peristalsis after dorsal lateral medullary infarction (LMI) requires long-term tube feeding. However, no study is currently available on therapeutic effectiveness in severe dysphagia caused by nuclear damage of vagus nerve after dorsal LMI. The purpose of the present investigation was to explore the potential of transcutaneous vagus nerve stimulation (tVNS) to improve severe dysphagia with weak pharyngeal peristalsis after dorsal
LMI. Method: We assessed the efficacy of 6-week tVNS in a 28-year-old woman presented with persisting severe dysphagia after dorsal LMI who had been on nasogastric feeding for 6 months. tVNS was applied for 20 min twice a day, 5 days a week, for 6 weeks. The outcome measures included saliva spitted, Swallow Function Scoring System, Functional Oral Intake Scale, Clinical Assessment of Dysphagia With Wallenberg Syndrome, Yale Pharyngeal Residue Severity Rating Scale, and upper esophagus X-ray examination. Results: After tVNS, the patient was advanced to a full oral diet without head rotation or spitting. No saliva residue was found in the valleculae and pyriform sinuses. Contrast medium freely passed through the upper esophageal sphincter. Conclusion: Our findings suggest that tVNS might provide a useful means for recovery of severe dysphagia with weak pharyngeal peristalsis after dorsal LMI.

Database: CINAHL


Author(s): Zhu, Vincent; Dalby-Payne, Jacqueline; Dalby-Payne, Jacqueline

Source: Journal of Paediatrics & Child Health; Nov 2019; vol. 55 (no. 11); p. 1304-1308

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31576627

Available at Journal of paediatrics and child health - from Wiley Online Library

Abstract: Feeding difficulties are common and significant issues for children with autism spectrum disorder and their families. Key features of autism are intrinsically linked with factors contributing to these children’s feeding difficulties. Following a multidisciplinary assessment to exclude non-behavioural reasons for the feeding difficulty, there are two mainstay modalities of treatment: operant conditioning and systematic desensitisation. Currently, evidence points towards operant conditioning as the most efficacious psychotherapy. However, recent research into cognitive behavioural therapy for older children with feeding difficulties has shown promising results and will be an area to monitor in the coming years. This review outlines the causes and health impacts and evaluates current evidence supporting the available psychotherapeutic interventions for children with autism spectrum disorder experiencing feeding difficulties.

Database: CINAHL

Speech-Language Pathologists' Views About Aspiration Risk and Comfort Feeding in Advanced Dementia.

Author(s): Berkman, Cathy; Ahronheim, Judith C.; Vitale, Caroline A.

Source: American Journal of Hospice & Palliative Medicine; Nov 2019; vol. 36 (no. 11); p. 993-998

Publication Date: Nov 2019

Publication Type(s): Academic Journal

Abstract: Background: Speech-language pathologists (SLPs) are often called upon to assess swallowing function for older adults with advanced dementia at high risk of aspiration and make recommendations about whether the patient can safely continue oral nutrition. Objective: To describe the circumstances under which SLPs recommend oral nutritional intake for these patients. Methods: A mail survey of a national probability sample of SLPs (n = 731). Speech-language pathologists were asked if there were circumstances in which they would recommend oral feeding for patients with advanced dementia at high risk of aspiration, and if yes, to describe the
circumstances under which they do so. Results: Six themes emerged: (1) when patient preferences are known; (2) for quality of life near end of life; (3) if aspiration risk mitigation strategies are employed; (4) if physician's preference; (5) if aspiration risk is clearly documented and acknowledged; and (6) if SLP is knowledgeable about current evidence of lack of benefit of feeding tubes in advanced dementia or that nothing by mouth status will not necessarily prevent aspiration pneumonia. Conclusions: Speech-language pathologists have an important role within the interprofessional team in assessing swallowing in patients with advanced dementia, advising family and hospital staff about risks and benefits of oral feeding, and the safest techniques for doing so, to maximize quality of life for these patients near the end of life. Speech-language pathologists are often faced with balancing concerns about aspiration risk and recommending the more palliative approach of oral feeding for pleasure and comfort, potentially creating moral distress for the SLP.

**Database:** CINAHL

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**Efficacy of modified chin tuck against resistance exercise using hand-free device for dysphagia in stroke survivors: A randomised controlled trial.**

**Author(s):** Kim, Hwan-Hee; Park, Ji-Su

**Source:** Journal of Oral Rehabilitation; Nov 2019; vol. 46 (no. 11); p. 1042-1046

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**Abstract:** Background: Chin tuck against resistance exercise was recently reported as a novel method for improving the swallowing function of patients with post-stroke dysphagia. However, as this exercise involves holding and fixing the device using the hand, physically weak patients may find it difficult to perform it. Objectives: This study aimed to investigate the effect of modified chin tuck against resistance (mCTAR) exercise on patients with post-stroke dysphagia. Methods: In total, 30 patients with dysphagia were recruited in this study. They were randomly assigned to either the experimental or control group. The experimental group performed mCTAR exercise and received traditional dysphagia treatment, whereas the control group received only traditional dysphagia treatment. mCTAR exercise involved isometric and isotonic exercises. Aspiration and oral diet were evaluated using penetration-aspiration scale (PAS) and functional oral intake scale (FOIS), respectively. Moreover, the rate of nasogastric tube removal was analysed. Results: Compared with the control group, the experimental group showed statistically significant improvement in PAS and FOIS (P < 0.001, both). The rates of nasogastric tube removal were 25% and 15% in the experimental and control groups, respectively. Conclusion: This study demonstrated that mCTAR exercise can reduce aspiration and improve dietary levels in patients with post-stroke dysphagia. Therefore, mCTAR exercise is expected to be beneficial for physically vulnerable patients with dysphagia who have limited hand strength and range of motion.

**Database:** CINAHL

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**Longus Capitis Reconstruction of the Soft Palate.**

**Author(s):** Gross, Jennifer H.; Zenga, Joseph; Sharon, Jeffrey D.; Jackson, Ryan S.; Pipkorn, Patrik

**Source:** Otolaryngology-Head & Neck Surgery; Sep 2019; vol. 161 (no. 3); p. 536-538

**Publication Date:** Sep 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31084255
Abstract: Soft palate (SP) reconstruction remains a challenge for the head and neck reconstructive surgeon. One favorable local flap option is the longus capitis muscle (LCM), a deep neck flexor with redundant muscle function, appropriate bulk, and a relatively straightforward surgical harvest. A retrospective review of 3 patients with T2 to T4 tonsil squamous cell carcinoma requiring SP resection and LCM reconstruction at a single institution was performed. Three patients underwent primary transoral resection, all resulting in at least 50% full-thickness SP defects. Reconstruction comprised a superiorly based LCM local flap. Patients underwent adjuvant (chemo)radiation therapy as indicated. Within 3 to 8 months, each patient was tolerating a full oral diet with no dysphagia, nasal regurgitation, or velopharyngeal insufficiency. For select patients with SP defects, a superiorly based LCM flap may provide a functionally acceptable reconstruction with minimal donor site morbidity.

Database: CINAHL

Regulatory Mechanisms of Soft Palate Development and Malformations.

Author(s): Li, J.; Rodriguez, G.; Han, X.; Janečková, E.; Kahng, S.; Song, B.; Chai, Y.; Janecˇková, E

Source: Journal of Dental Research; Aug 2019; vol. 98 (no. 9); p. 959-967

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31150594

Abstract: Orofacial clefting is the most common congenital craniofacial malformation, appearing in approximately 1 in 700 live births. Orofacial clefting includes several distinct anatomic malformations affecting the upper lip and hard and soft palate. The etiology of orofacial clefting is multifactorial, including genetic or environmental factors or their combination. A large body of work has focused on the molecular etiology of cleft lip and clefts of the hard palate, but study of the underlying etiology of soft palate clefts is an emerging field. Recent advances in the understanding of soft palate development suggest that it may be regulated by distinct pathways from those implicated in hard palate development. Soft palate clefting leads to muscle misorientation and oropharyngeal deficiency and adversely affects speech, swallowing, breathing, and hearing. Hence, there is an important need to investigate the regulatory mechanisms of soft palate development. Significantly, the anatomy, function, and development of soft palatal muscles are similar in humans and mice, rendering the mouse an excellent model for investigating molecular and cellular mechanisms of soft palate clefts. Cranial neural crest-derived cells provide important regulatory cues to guide myogenic progenitors to differentiate into muscles in the soft palate. Signals from the palatal epithelium also play key roles via tissue-tissue interactions mediated by Tgf-β, Wnt, Fgf, and Hh signaling molecules. Additionally, mutations in transcription factors, such as Dlx5, Tbx1, and Tbx22, have been associated with soft palate clefting in humans and mice, suggesting that they play important regulatory roles during soft palate development. Finally, we highlight the importance of distinguishing specific types of soft palate defects in patients and developing relevant animal models for each of these types to improve our understanding of the regulatory mechanism of soft palate development. This knowledge will provide a foundation for improving treatment for patients in the future.

Database: CINAHL

Developmental Language Disorder
A real-time mechanism underlying lexical deficits in developmental language disorder: Between-word inhibition.

Author(s): McMurray, Bob; Klein-Packard, Jamie; Tomblin, J. Bruce

Source: Cognition; Oct 2019; vol. 191

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31234114

Abstract: Eight to 11% of children have a clinical disorder in oral language (Developmental Language Disorder, DLD). Language deficits in DLD can affect all levels of language and persist through adulthood. Word-level processing may be critical as words link phonology, orthography, syntax and semantics. Thus, a lexical deficit could cascade throughout language. Cognitively, word recognition is a competition process: as the input (e.g., lizard) unfolds, multiple candidates (liver, wizard) compete for recognition. Children with DLD do not fully resolve this competition, but it is unclear what cognitive mechanisms underlie this. We examined lexical inhibition—the ability of more active words to suppress competitors—in 79 adolescents with and without DLD. Participants heard words (e.g. net) in which the onset was manipulated to briefly favor a competitor (neck). This was predicted to inhibit the target, slowing recognition. Word recognition was measured using a task in which participants heard the stimulus, and clicked on a picture of the item from an array of competitors, while eye-movements were monitored as a measure of how strongly the participant was committed to that interpretation over time. TD listeners showed evidence of inhibition with greater interference for stimuli that briefly activated a competitor word. DLD listeners did not. This suggests deficits in DLD may stem from a failure to engage lexical inhibition. This in turn could have ripple effects throughout the language system. This supports theoretical approaches to DLD that emphasize lexical-level deficits, and deficits in real-time processing.

Database: CINAHL

Does Inattention and Hyperactivity Moderate the Relation Between Speed of Processing and Language Skills?

Author(s): Gooch, Debbie; Sears, Claire; Maydew, Harriet; Vamvakas, George; Norbury, Courtenay F.

Source: Child Development; Sep 2019; vol. 90 (no. 5)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30737991

Available at Child development - from Wiley Online Library

Available at Child development - from Unpaywall

Abstract: The causal role of speed of processing (SOP) in developmental language disorder (DLD) is unclear given that SOP has been implicated in other neurodevelopmental disorders such as attention-deficit/hyperactivity disorder. This study investigated associations between SOP, language, and inattention/hyperactivity in a U.K. epidemiological cohort (N = 528). Monolingual children from a range of socioeconomic backgrounds were assessed longitudinally; at ages 5-6 (2012/2013) and 7-8 years (2014/2015). Persistent weaknesses in SOP characterized children with DLD but did not predict language longitudinally. Ratings of inattention/hyperactivity moderated the association between SOP and language, indicating that SOP deficits are particularly detrimental for language when coupled with poor attention/hyperactivity. SOP may be a shared risk factor for DLD and inattention/hyperactivity or a general marker of neurodevelopmental disorder.

Database: CINAHL
The mis-wired language network in children with developmental language disorder: insights from DTI tractography.

Author(s): Verly, Marjolein; Gerrits, Robin; Sleurs, Charlotte; Lagae, Lieven; Sunaert, Stefan; Zink, Inge; Rommel, Nathalie

Source: Brain Imaging & Behavior; Aug 2019; vol. 13 (no. 4); p. 973-984

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 29934818

Abstract: This study aims to detect the neural substrate underlying the language impairment in children with developmental language disorder (DLD) using diffusion tensor imaging (DTI) tractography. Deterministic DTI tractography was performed in a group of right-handed children with DLD (N = 17; mean age 10;07 ± 2;01 years) and a typically developing control group matched for age, gender and handedness (N = 22; mean age 11;00 ± 1;11 years) to bilaterally identify the superior longitudinal fascicle, arcuate fascicle, anterior lateral segment and posterior lateral segment (also called dorsal language network) and the middle and inferior longitudinal fascicle, extreme capsule fiber system and uncinate fascicle (also called ventral language network). Language skills were assessed using an extensive, standardized test battery. Differences in language performance, white matter organization and structural lateralization of the language network were statistically analyzed. Children with DLD showed a higher overall volume and higher ADC values for the left-hemispheric language related WM tracts. In addition, in children with DLD, the majority (88%; 7/8) of the studied language related WM tracts did not show a significant left or right lateralization pattern. These structural alterations might underlie the language impairment in children with DLD.

Database: CINAHL

Modifying a language screening tool for three-year-old children identified severe language disorders six months earlier.

Author(s): Nayeb, Laleh; Lagerberg, Dagmar; Westerlund, Monica; Sarkadi, Anna; Lucas, Steven; Eriksson, Mårten

Source: Acta Paediatrica; Sep 2019; vol. 108 (no. 9); p. 1642-1648

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30896050

Available at Acta paediatrica (Oslo, Norway : 1992) - from Wiley Online Library

Abstract: Aim: We examined if routine Swedish language screening for developmental language disorder (DLD) carried out at three years of age could be performed as effectively six months earlier. Methods: This study observed 105 monolingual Swedish-speaking children (53% boys) aged 29-31 months at three Swedish child health centres. We compared their ability to combine three words, as per the existing protocol, and two words. They also underwent a comprehension task. Speech and language pathologists clinically assessed the children for DLD and their results were compared with the nurse-led screening. Results: The results for the three-word and two-word criterion were the following: sensitivity (100% versus 91%) specificity (81% versus 91%), positive predictive (38% versus 56%) and negative predictive value (100% versus 99%). The three-word criterion identified 29 children with possible DLD, including 11 cases later confirmed, and the two-word criterion identified 18 possible cases, including 10 confirmed cases. DLD was overrepresented
in the 10% of children who did not cooperate with the nurse-led screening. Conclusion: Changing the required word combinations from three to two words worked well. The three-word test identified one extra confirmed case, but resulted in 10 more false positives. Lack of cooperation during screening constituted an increased risk for DLD.

**Database:** CINAHL

**Developmental Outcomes for Children at High Risk of Dyslexia and Children With Developmental Language Disorder.**

**Author(s):** Snowling, Margaret J.; Nash, Hannah M.; Gooch, Debbie C.; Hayiou-Thomas, Marianna E.; Hulme, Charles; Hayiou-Thomas, Marianna E

**Source:** Child Development; Sep 2019; vol. 90 (no. 5)

**Publication Date:** Sep 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30676649

Available at Child development - from Wiley Online Library

Available at Child development - from Unpaywall

**Abstract:** We followed children at family risk of dyslexia and children with preschool language difficulties from age 3½, comparing them with controls (N = 234). At age 8, children were classified as having dyslexia or Developmental Language Disorder (DLD) and compared at earlier time points with controls. Children with dyslexia have specific difficulties with phonology and emergent reading skills in the preschool period, whereas children with DLD, with or without dyslexia, show a wider range of impairments including significant problems with executive and motor tasks. For children with both dyslexia and DLD, difficulties with phonology are generally more severe than those observed in children with dyslexia or DLD alone. Findings confirm that poor phonology is the major cognitive risk factor for dyslexia.

**Database:** CINAHL

**OTHER**

**Patient and service factors associated with referral and admission to inpatient rehabilitation after the acute phase of stroke in Australia and Norway.**

**Author(s):** Labberton, Angela S.; Barra, Mathias; Rønning, Ole Morten; Thommessen, Bente; Churilov, Leonid; Cadilhac, Dominique A.; Lynch, Elizabeth A.

**Source:** BMC Health Services Research; Nov 2019; vol. 19 (no. 1)

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 31752874

Available at BMC health services research - from BioMed Central

Available at BMC health services research - from Europe PubMed Central - Open Access

Available at BMC health services research - from EBSCO (MEDLINE Complete)

Available at BMC health services research - from ProQuest (Health Research Premium) - NHS Version

Available at BMC health services research - from Unpaywall
Abstract: Background: Unequal access to inpatient rehabilitation after stroke has been reported. We sought to identify and compare patient and service factors associated with referral and admission to an inpatient rehabilitation facility (IRF) after acute hospital care for stroke in two countries with publicly-funded healthcare. Methods: We compared two cohorts of stroke patients admitted consecutively to eight acute public hospitals in Australia in 2013-2014 (n = 553), and to one large university hospital in Norway in 2012-2013 (n = 723). Outcomes were: referral to an IRF; admission to an IRF if referred. Logistic regression models were used to identify and compare factors associated with each outcome. Results: Participants were similar in both cohorts: mean age 73 years, 40-44% female, 12-13% intracerebral haemorrhage, ~77% mild stroke (National Institutes of Health Stroke Scale < 8). Services received during the acute admission differed (Australia vs. Norway): stroke unit treatment 82% vs. 97%, physiotherapy 93% vs. 79%, occupational therapy 83% vs. 77%, speech therapy 78% vs. 13%. Proportions referred to an IRF were: 48% (Australia) and 37% (Norway); proportions admitted: 35% (Australia) and 28% (Norway). Factors associated with referral in both countries were: moderately severe stroke, receiving stroke unit treatment or allied health assessments during the acute admission, living in the community, and independent pre-stroke mobility. Directions of associations were mostly congruent; however younger patients were more likely to be referred and admitted in Norway only. Models for admission among patients referred identified few associated factors suggesting that additional factors were important for this stage of the process. Conclusions: Similar factors were associated with referral to inpatient rehabilitation after acute stroke in both countries, despite differing service provision and access rates. Assuming it is not feasible to provide inpatient rehabilitation to all patients following stroke, the criteria for the selection of candidates need to be understood to address unwanted biases.

Database: CINAHL

Previous Surgery and Hypoglossal Nerve Stimulation for Obstructive Sleep Apnea.

Author(s): Kezirian, Eric J.; Heiser, Clemens; Steffen, Armin; Boon, Maurits; Hofauer, Benedikt; Doghramji, Karl; Maurer, Joachim T.; Sommer, J. Ulrich; Soose, Ryan J.; Schwab, Richard; Thaler, Erica; Withrow, Kirk; Kominsky, Alan; Larsen, Christopher G.; Hsia, Jennifer; Mehra, Reena; Waters, Tina; Strohl, Kingman

Source: Otolaryngology-Head & Neck Surgery; Nov 2019; vol. 161 (no. 5); p. 897-903

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31234734

Abstract: Objective: To examine whether previous palate or hypopharyngeal surgery was associated with efficacy of treatment of obstructive sleep apnea with hypoglossal nerve stimulation. Study Design: Cohort (retrospective and prospective). Setting: Eleven academic medical centers. Subjects and Methods: Adults treated with hypoglossal nerve stimulation were enrolled in the ADHERE Registry. Outcomes were defined by the apnea-hypopnea index (AHI), in 3 ways: change in the AHI and 2 definitions of therapy response requiring ≥50% reduction in the AHI to a level <20 events/h (Response20) or 15 events/h (Response15). Previous palate and hypopharyngeal (tongue, epiglottis, or maxillofacial) procedures were documented. Linear and logistic regression examined the association between previous palate or hypopharyngeal surgery and outcomes, with adjustment for age, sex, and body mass index. Results: The majority (73%, 217 of 299) had no previous palate or hypopharyngeal surgery, while 25% and 9% had previous palate or hypopharyngeal surgery, respectively, including 6% with previous palate and hypopharyngeal surgery. Baseline AHI (36.0 ± 15.6 events/h) decreased to 12.0 ± 13.3 at therapy titration (P < .001) and 11.4 ± 12.6 at final follow-up (P < .001). Any previous surgery, previous palate surgery, and previous hypopharyngeal surgery were not clearly associated with treatment response; for example, any previous surgery was associated with a 0.69 (95% CI: 0.37, 1.27) odds of response (Response20 measure) at therapy titration.
titration and a 0.55 (95% CI: 0.22, 1.34) odds of response (Response20 measure) at final follow-up. Conclusion: Previous upper airway surgery was not clearly associated with efficacy of hypoglossal nerve stimulation.

**Database:** CINAHL

**Effect of Compression on Musical Sound Quality in Cochlear Implant Users.**

**Author(s):** Gilbert, Melanie; Jiradejvong, Patpong; Limb, Charles

**Source:** Ear & Hearing (01960202); Nov 2019; vol. 40 (no. 6); p. 1368-1375

**Publication Date:** Nov 2019

**Publication Type(s):** Academic Journal

**PubMedID:** 30946137

**Abstract:** Objectives: Cochlear implant (CI) users frequently report poor sound quality while listening to music, although the specific parameters responsible for this loss of sound quality remain poorly understood. Audio compression, which reduces the dynamic range (DR) for a given sound, is a ubiquitous component of signal processing used by both CI and hearing aid technology. However, the relative impact of compression for acoustic and electric hearing on music perception has not been well studied, an important consideration especially given that most compression algorithms in CIs were developed to optimize speech perception. The authors hypothesized that normal-hearing (NH) listeners would detect increased levels of compression more easily than CI users, but that both groups would perceive a loss of sound quality with increasing compression levels.

**Design:** The present study utilizes the Cochlear Implant-MUltiple Stimulus with Hidden Reference and Anchor to evaluate the listener sensitivity to increasing levels of compression applied to music stimuli. The Cochlear Implant-MUltiple Stimulus with Hidden Reference and Anchor is a tool used to assess relative changes in the perceived sound quality of music across increasingly degraded listening conditions, in both CI and NH subjects. In this study, the authors applied multiple iterations of an aggressive compression algorithm to the music clips using Adobe Audition. The test conditions included 1, 3, 5, and 20 iterations sound tokens, with the 20-iteration samples serving as the Anchor stimuli. The compressed excerpts were 5 sec in length, with five clips for each of the five common musical genres (i.e., Classical, Jazz, Country, Rock, and Hip-Hop). Subjects were also presented with a Reference excerpt, which was the original music clip without any additional compression applied. CI recipients (n = 7, 11 ears) and NH listeners (n = 10) were asked to rate the sound quality of additionally compressed music as compared to the Reference.

**Results:** Although both NH and CI groups could detect sound quality differences as a function of compression level, the discriminatory ability of the CI group was blunted compared to the NH group. The CI group had less variability in their responses and overall demonstrated reduced sensitivity to deterioration caused by excessive levels of compression. On average, the CI group rated the Anchor condition as only "Slightly worse" than the Reference. The music clips that were most affected by the compression were from Jazz and Hip-Hop genres and less so for Rock and Country clips. Corollary to this was a small but statistically significant impact of DR of the music clips on sound quality ratings, with narrower DR showing an association with poorer ratings.

**Conclusions:** These results indicate that CI users exhibit less sensitivity to sound quality changes in music attributable to high levels of compression. These findings may account for another contributing factor to the generally poor music perception observed in CI users, particularly when listening to commercially recorded music.

**Database:** CINAHL

**Age-Related Changes in Temporal Resolution Revisited: Electrophysiological and Behavioral Findings From Cochlear Implant Users.**
Abstract: Objectives: The mechanisms underlying age-related changes in speech perception are still unclear, most likely multifactorial and often can be difficult to parse out from the effects of hearing loss. Age-related changes in temporal resolution (i.e., the ability to track rapid changes in sounds) have long been associated with speech perception declines exhibited by many older individuals. The goals of this study were as follows: (1) to assess age-related changes in temporal resolution in cochlear implant (CI) users, and (2) to examine the impact of changes in temporal resolution and cognition on the perception of speech in noise. In this population, it is possible to bypass the cochlea and stimulate the auditory nerve directly in a noninvasive way. Additionally, CI technology allows for manipulation of the temporal properties of a signal without changing its spectrum.

Design: Twenty postlingually deafened Nucleus CI users took part in this study. They were divided into groups of younger (18 to 40 years) and older (68 to 82 years) participants. A cross-sectional study design was used. The speech processor was bypassed and a mid-array electrode was used for stimulation. We compared peripheral and central physiologic measures of temporal resolution with perceptual measures obtained using similar stimuli. Peripherally, temporal resolution was assessed with measures of the rate of recovery of the electrically evoked compound action potential (ECAP), evoked using a single pulse and a pulse train as maskers. The acoustic change complex (ACC) to gaps in pulse trains was used to assess temporal resolution more centrally. Psychophysical gap detection thresholds were also obtained. Cognitive assessment included two tests of processing speed (Symbol Search and Coding) and one test of working memory (Digit Span Test). Speech perception was tested in the presence of background noise (QuickSIN test). A correlational design was used to explore the relationship between temporal resolution, cognition, and speech perception.

Results: The only metric that showed significant age effects in temporal processing was the ECAP recovery function recorded using pulse train maskers. Younger participants were found to have faster rates of neural recovery following presentation of pulse trains than older participants. Age was not found to have a significant effect on speech perception. When results from both groups were combined, digit span was the only measure significantly correlated with speech perception performance.

Conclusions: In this sample of CI users, few effects of advancing age on temporal resolution were evident. While this finding would be consistent with a general lack of aging effects on temporal resolution, it is also possible that aging effects are influenced by processing peripheral to the auditory nerve, which is bypassed by the CI. However, it is known that cross-fiber neural synchrony is improved with electrical (as opposed to acoustic) stimulation. This change in neural synchrony may, in turn, make temporal cues more robust/perceptible to all CI users. Future studies involving larger sample sizes should be conducted to confirm these findings. Results of this study also add to the growing body of literature that suggests that working memory is important for the perception of degraded speech.

Database: CINAHL
Objectives: Research suggests that the speech perception of children using bone conduction amplification improves if the device is coupled to an implanted abutment rather than to a softband. The purpose of the present study was to determine if the benefit of direct stimulation via an abutment is limited to small improvements in speech perception or if similar or greater benefits occur for other auditory tasks important for learning and communication.

Design: Fourteen children (7 to 15 years of age) with bilateral conductive and three children with unilateral conductive or sensorineural hearing loss were enrolled. Each child completed four tasks while using a bone conduction device coupled to an implanted abutment and with the device coupled to a softband. The two devices were worn at the same time and activated one at a time for testing. The children completed four tasks under each coupling condition: (a) a traditional word recognition task, (b) an auditory lexical decision task in which the children repeated aloud, and indicated the category of, real and nonsense words, (c) a nonsense-word detection task which required the children to identify nonsense words within short sentences, and (d) a rapid word learning task in which the children learned to associate nonsense words with novel images.

Results: Regression analyses revealed that age, duration of device use, in-situ hearing thresholds, or device output did not account for a significant portion of the variability in performance for any of the four tasks. Repeated-measures analysis of variance revealed significant increases in word recognition with the abutment as well as significantly better performance for the lexical decision and word learning tasks. The data indicated that the children with the poorest performance with the softband tended to benefit most with the abutment. Also, the younger children showed improved performance for more tasks with the abutment than the older children. No difference between coupling conditions was observed for nonsense-word detection.

Conclusions: The improved recognition of familiar words, categorization and repetition of nonsense words, and speed of word learning with the abutment suggests that direct stimulation provides a higher-quality signal than indirect stimulation through a softband. Because these processes are important for vocabulary acquisition and language development, children may experience long-term benefits of direct stimulation for academic, social, and vocational purposes in addition to immediate improvement in communication.

Database: CINAHL


Author(s): Dirks, Coral; Nelson, Peggy B.; Sladen, Douglas P.; Oxenham, Andrew J.

Source: Ear & Hearing (01960202); Nov 2019; vol. 40 (no. 6); p. 1293-1306

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30870240

Abstract: Objectives: This study tested listeners with a cochlear implant (CI) in one ear and acoustic hearing in the other ear, to assess their ability to localize sound and to understand speech in colocated or spatially separated noise or speech maskers.

Design: Eight CI listeners with contralateral acoustic hearing ranging from normal hearing to moderate sensorineural hearing loss were tested. Localization accuracy was measured in five of the listeners using stimuli that emphasized the separate contributions of interaural level differences (ILDs) and interaural time differences (ITD) in the temporal envelope and/or fine structure. Sentence recognition was tested in all eight CI listeners, using colocated and spatially separated speech-shaped Gaussian noise and two-talker babble. Performance was compared with that of age-matched normal-hearing listeners via loudspeakers or via headphones with vocoder simulations of CI processing.

Results: Localization improved with the CI but only when high-frequency ILDs were available. Listeners experienced no
additional benefit via ITDs in the stimulus envelope or fine structure using real or vocoder-simulated CIs. Speech recognition in two-talker babble improved with a CI in seven of the eight listeners when the target was located at the front and the babble was presented on the side of the acoustic-hearing ear, but otherwise showed little or no benefit of a CI. Conclusion: Sound localization can be improved with a CI in cases of significant residual hearing in the contralateral ear, but only for sounds with high-frequency content, and only based on ILDs. In speech understanding, the CI contributed most when it was in the ear with the better signal to noise ratio with a speech masker.

Database: CINAHL

Understanding Variability in Individual Response to Hearing Aid Signal Processing in Wearable Hearing Aids.

Author(s): Souza, Pamela; Arehart, Kathryn; Schoof, Tim; Anderson, Melinda; Strori, Dorina; Balmert, Lauren

Source: Ear & Hearing (01960202); Nov 2019; vol. 40 (no. 6); p. 1280-1292

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30998547

Abstract: Objectives: Previous work has suggested that individual characteristics, including amount of hearing loss, age, and working memory ability, may affect response to hearing aid signal processing. The present study aims to extend work using metrics to quantify cumulative signal modifications under simulated conditions to real hearing aids worn in everyday listening environments. Specifically, the goal was to determine whether individual factors such as working memory, age, and degree of hearing loss play a role in explaining how listeners respond to signal modifications caused by signal processing in real hearing aids, worn in the listener's everyday environment, over a period of time. Design: Participants were older adults (age range 54-90 years) with symmetrical mild-to-moderate sensorineural hearing loss. We contrasted two distinct hearing aid fittings: one designated as mild signal processing and one as strong signal processing. Forty-nine older adults were enrolled in the study and 35 participants had valid outcome data for both hearing aid fittings. The difference between the two settings related to the wide dynamic range compression and frequency compression features. Order of fittings was randomly assigned for each participant. Each fitting was worn in the listener's everyday environments for approximately 5 weeks before outcome measurements. The trial was double blind, with neither the participant nor the tester aware of the specific fitting at the time of the outcome testing. Baseline measures included a full audiometric evaluation as well as working memory and spectral and temporal resolution. The outcome was aided speech recognition in noise. Results: The two hearing aid fittings resulted in different amounts of signal modification, with significantly less modification for the mild signal processing fitting. The effect of signal processing on speech intelligibility depended on an individual's age, working memory capacity, and degree of hearing loss. Speech recognition with the strong signal processing decreased with increasing age. Working memory interacted with signal processing, with individuals with lower working memory demonstrating low speech intelligibility in noise with both processing conditions, and individuals with higher working memory demonstrating better speech intelligibility in noise with the mild signal processing fitting. Amount of hearing loss interacted with signal processing, but the effects were small. Individual spectral and temporal resolution did not contribute significantly to the variance in the speech intelligibility score. Conclusions: When the consequences of a specific set of hearing aid signal processing characteristics were quantified in terms of overall signal modification, there was a relationship between participant characteristics and recognition of speech at different levels of signal modification. Because the hearing aid fittings used were constrained to specific fitting parameters that represent the extremes of the signal
Modification that might occur in clinical fittings, future work should focus on similar relationships with more diverse types of signal processing parameters.

Database: CINAHL

Reliability of Measures Intended to Assess Threshold-Independent Hearing Disorders.

Author(s): Kamerer, Aryn M.; Kopun, Judy G.; Fultz, Sara E.; Neely, Stephen T.; Rasetshwane, Daniel M.

Source: Ear & Hearing (01960202); Nov 2019; vol. 40 (no. 6); p. 1267-1279

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30882533

Abstract: Objectives: Recent animal studies have shown that noise exposure can cause cochlear synaptopathy without permanent threshold shift. Because the noise exposure preferentially damaged auditory nerve fibers that processed suprathreshold sounds (low-spontaneous rate fibers), it has been suggested that synaptopathy may underlie suprathreshold hearing deficits in humans. Recently, several researchers have suggested measures to identify the pathology or pathologies underlying suprathreshold hearing deficits in humans based on results from animal studies; however, the reliability of some of these measures have not been assessed. The purpose of this study was to assess the test-retest reliability of measures that may have the potential to relate suprathreshold hearing deficits to site(s) of lesion along the peripheral auditory system in humans.

Design: Adults with audiometric normal hearing were tested on a battery of behavioral and physiologic measures that included (1) thresholds in quiet (TIQ), (2) thresholds in noise (TIN), (3) frequency-modulation detection threshold (FMDT), (4) word recognition in four listening conditions, (5) distortion-product otoacoustic emissions (DPOAE), (6) middle ear muscle reflex (MEMR), (7) tone burst-elicited auditory brainstem response (tbABR), and (8) speech-evoked ABR (sABR). Data collection for each measure was repeated over two visits separated by at least one week. The residuals of the correlation between the suprathreshold measures and TIQ serve as functional and quantitative proxies for threshold-independent hearing disorders because they represent the portion of the raw measures that is not dependent on TIQ. Reliability of the residual measures was assessed using intraclass correlation (ICC).

Results: Reliability for the residual measures was good (ICC \( \geq 0.75 \)) for FMDT, DPOAEs, and MEMR. Residual measures showing moderate reliability (0.5 \( \leq \) ICC < 0.75) were tbABR wave I amplitude, TIN, and word recognition in quiet, noise, and time-compressed speech with reverberation. Wave V of the tbABR, waves of the sABR, and recognition of time-compressed words had poor test-retest reliability (ICC < 0.5).

Conclusions: Reliability of residual measures was mixed, suggesting that care should be taken when selecting measures for diagnostic tests of threshold-independent hearing disorders. Quantifying hidden hearing loss as the variance in suprathreshold measures of auditory function that is not due to TIQ may provide a reliable estimate of threshold-independent hearing disorders in humans.

Database: CINAHL

Smart Phone APP to Restore Optimal Weight (SPAROW): protocol for a randomised controlled trial for women with recent gestational diabetes.

Author(s): Lim, Karen; Chi, Claudia; Chan, Shiao-Yng; Lim, Su Lin; Ang, Siew Min; Yoong, Joanne S.; Tsai, Cammy; Wong, Su Ren; Yew, Tong Wei; Tai, E. Shyong; Yong, Eu-Leong

Source: BMC Public Health; Oct 2019; vol. 19 (no. 1); p. 1-13

Publication Date: Oct 2019
**Abstract:** Background: Gestational diabetes (GDM) is a known risk factor for type 2 diabetes mellitus (T2DM), and women with a history of GDM have a 7-fold increased risk of developing the disease. Achieving a healthy weight post-delivery is key in reducing the risk of future diabetes in these women. The aim of this trial is to investigate the use of an interactive smartphone application (APP) to restore women to optimal weight following delivery. Methods: This will be an open-label randomized controlled trial. Two hundred women with gestational diabetes will be randomized to receive the intervention or standard care following delivery. Participants will be reviewed at 6 weeks and 4 months post-delivery. The intervention is an APP serving as a platform for weight, diet and physical activity tracking. The APP provides 3-5 min educational videos suggesting suitable lifestyle adjustments relevant to postnatal period such as breast feeding, diet and exercise. Lastly, the APP will allow real-time interaction between users and the team of dietitians, physiotherapists and occupational therapists to encourage restoration of optimal weight. Women in the control arm will be informed about the increased risk of developing T2DM and advised to maintain a healthy weight. Primary outcome measure is the restoration of participants’ booking weight if booking BMI ≤ 23, or weight loss of at least 5% from booking weight if booking BMI > 23 over the 4 month period. Secondary outcome measures will assess serum metabolic and inflammatory markers, quality of life via questionnaires and cost-effectiveness of the intervention at each follow-up visit. Discussion: This will be the first randomised controlled trial investigating the use of a smartphone application for postpartum weight loss in women with gestational diabetes. The major ethnic groups in our study population represent the majority of ethnic groups in Asia, amongst which the prevalence of diabetes is high. If shown to be effective, this APP may be used in wider clinical settings to improve postpartum weight loss and reduce the risk of developing T2DM in these women. Trial Registration: This study was registered on clintrials.gov on the 30th of October 2017, under the trial registration number: NCT03324737.
outpatient services for ASD, including occupational, physical, and speech therapies and other behavioral interventions, reduced the likelihood of psychiatric hospitalizations and ED visits.

Methods: The study sample was composed of >100,000 children and young adults with ASD and commercial insurance from every state between 2008 and 2012. The authors estimated maximum-likelihood complementary log-log link survival models with robust standard errors. The outcomes of interest were a hospitalization or an ED visit with an associated psychiatric diagnosis code (ICD-9-CM 290 through 319) in a given week.

Results: An increase of $125 in weekly spending on ASD-specific outpatient services in the 7 to 14 weeks prior to a given week reduced the likelihood of a psychiatric hospitalization in that week by 2%. ASD-specific outpatient spending during the 6 weeks prior to a psychiatric hospitalization did not decrease risk of hospitalization. Spending on ASD-specific outpatient services did not reduce the likelihood of a psychiatric ED visit.

Conclusions: The financial burden associated with ASD is extensive, and psychiatric hospitalizations remain the most expensive type of care, costing more than $4,000 per week on average. Identifying the mechanisms by which psychiatric hospitalizations occur may reduce the likelihood of these events.

Database: CINAHL

Cortical networks for speech motor control in unilateral vocal fold paralysis.

Author(s): Naunheim, Molly L.; Yung, Katherine C.; Schneider, Sarah L.; Henderson-Sabes, Jennifer; Kothare, Hardik; Hinkley, Leighton B.; Mizuiri, Danielle; Klein, David J.; Houde, John F.; Nagarajan, Srikantan S.; Cheung, Steven W.; Henderson-Sabes, Jennifer

Source: Laryngoscope; Sep 2019; vol. 129 (no. 9); p. 2125-2130

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30570142

Available at The Laryngoscope - from Wiley Online Library

Abstract: Objective: To evaluate brain networks for motor control of voice production in patients with treated unilateral vocal fold paralysis (UVFP).

Study Design: Cross-sectional comparison.

Methods: Nine UVFP patients treated by type I thyroplasty, and 11 control subjects were compared using magnetoencephalographic imaging to measure beta band (12-30 Hz) neural oscillations during voice production with perturbation of pitch feedback. Differences in beta band power relative to baseline were analyzed to identify cortical areas with abnormal activity within the 400 ms perturbation period and 125 ms beyond, for a total of 525 ms.

Results: Whole-brain task-induced beta band activation patterns were qualitatively similar in both treated UVFP patients and healthy controls. Central vocal motor control plasticity in UVFP was expressed within constitutive components of central human communication networks identified in healthy controls. Treated UVFP patients exhibited statistically significant enhancement (P < 0.05) in beta band activity following pitch perturbation onset in left auditory cortex to 525 ms, left premotor cortex to 225 ms, and left and right frontal cortex to 525 ms.

Conclusion: This study further corroborates that a peripheral motor impairment of the larynx can affect central cortical networks engaged in auditory feedback processing, vocal motor control, and judgment of voice-as-self. Future research to dissect functional relationships among constitutive cortical networks could reveal neurophysiological bases of central contributions to voice production impairment in UVFP. Those novel insights would motivate innovative treatments to improve voice production and reduce misalignment of voice-quality judgment between clinicians and patients.


Database: CINAHL
Auditory Localization and Spatial Release From Masking in Children With Suspected Auditory Processing Disorder.

Author(s): Boothalingam, Sriram; Purcell, David W.; Allan, Chris; Allen, Prudence; Macpherson, Ewan
Source: Ear & Hearing (01960202); Sep 2019; vol. 40 (no. 5); p. 1187-1196
Publication Date: Sep 2019
Publication Type(s): Academic Journal
PubMedID: 30870241

Abstract: Objectives: We sought to investigate whether children referred to our audiology clinic with a complaint of listening difficulty, that is, suspected of auditory processing disorder (APD), have difficulties localizing sounds in noise and whether they have reduced benefit from spatial release from masking. Design: Forty-seven typically hearing children in the age range of 7 to 17 years took part in the study. Twenty-one typically developing (TD) children served as controls, and the other 26 children, referred to our audiology clinic with listening problems, were the study group: suspected APD (sAPD). The ability to localize a speech target (the word "baseball") was measured in quiet, broadband noise, and speech-babble in a hemi-anechoic chamber. Participants stood at the center of a loudspeaker array that delivered the target in a diffused noise-field created by presenting independent noise from four loudspeakers spaced 90° apart starting at 45°. In the noise conditions, the signal-to-noise ratio was varied between -12 and 0 dB in 6-dB steps by keeping the noise level constant at 66 dB SPL and varying the target level. Localization ability was indexed by two metrics, one assessing variability in lateral plane [lateral scatter (Lscat)] and the other accuracy in the front/back dimension [front/back percent correct (FBpc)]. Spatial release from masking (SRM) was measured using a modified version of the Hearing in Noise Test (HINT). In this HINT paradigm, speech targets were always presented from the loudspeaker at 0°, and a single noise source was presented either at 0°, 90°, or 270° at 65 dB A. The SRM was calculated as the difference between the 50% correct HINT speech reception threshold obtained when both speech and noise were collocated at 0° and when the noise was presented at either 90° or 270°. Results: As expected, in both groups, localization in noise improved as a function of signal-to-noise ratio. Broadband noise caused significantly larger disruption in FBpc than in Lscat when compared with speech babble. There were, however, no group effects or group interactions, suggesting that the children in the sAPD group did not differ significantly from TD children in either localization metric (Lscat and FBpc). While a significant SRM was observed in both groups, there were no group effects or group interactions. Collectively, the data suggest that children in the sAPD group did not differ significantly from the TD group for either binaural measure investigated in the study. Conclusions: As is evident from a few poor performers, some children with listening difficulties may have difficulty in localizing sounds and may not benefit from spatial separation of speech and noise. However, the heterogeneity in APD and the variability in our data do not support the notion that localization is a global APD problem. Future studies that employ a case study design might provide more insights.

Database: CINAHL

Effectiveness of Intensive Rehabilitation Therapy on Functional Outcomes After Stroke: A Propensity Score Analysis Based on Japan Rehabilitation Database.

Author(s): Kamo, Tomohiko; Momosaki, Ryo; Suzuki, Keisuke; Asahi, Ryoma; Azami, Masato; Ogihara, Hirofumi; Nishida, Yuusuke
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**Abstract:** Aim: To examine the association of the amount of rehabilitation with functional gains of elderly stroke patients at a convalescent rehabilitation ward using propensity score analysis methods and the Japan Rehabilitation Database. Methods: This study was a retrospective cohort study. From the database, 6875 patients who were admitted to the convalescent rehabilitation wards with stroke were identified. After excluding 4586 patients, 2325 were eligible for the study. Intensive rehabilitation therapy (IRT) was defined as rehabilitation therapy of more than 15 hours per week by a physical therapist, an occupational therapist, and/or a speech therapist. Functional Independence Measure (FIM) gain, discharge rate to home, and FIM efficiency were examined using student’s t test and the χ2 test after inverse probability weighting (IPW). Results: IRT was provided to 862 patients (37.1%). The unadjusted data showed that patients in the IRT group had a longer hospital stay, more physical therapy, occupational therapy, and speech and language therapy. After adjustment for IPW, the baseline characteristics were found to be closely matched between the 2 groups. The IRT group showed significantly higher motor FIM gain, cognitive FIM gain, FIM gain, and discharge rate to home. Conclusions: The present study demonstrated that a longer rehabilitation time per week was associated with increased functional gain in elderly stroke patients at convalescent rehabilitation wards.

**Database:** CINAHL

**Views of professionals about the educational needs of children with neurodevelopmental disorders.**

**Author(s):** Van Herwegen, Jo; Ashworth, Maria; Palikara, Olympia

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**Abstract:** Background: Professionals play a key role in supporting children with special educational needs in schools. However, the views of those working with neurodevelopmental disorders are less known. Aims: This study examined the views of professionals (including teachers, teaching assistants, educational psychologists, speech and language therapists, physio and occupational therapists etc.) working with children with Williams Syndrome (WS), Down Syndrome (DS) or with Autism Spectrum Disorders (ASD) in terms of how informed professionals are about the disorder and their views about the type of support these children need to be receiving. Methods and Procedures: Professionals working with 77 children with ASD, 26 with DS and 38 with WS completed an online questionnaire. Outcomes and Results: Professionals in all three groups highlighted relevant areas of difficulty for these children, but they did not recognise some of the less phenotypical difficulties that children with a specific disorder may experience. In addition, there was a disconnect between the difficulties identified by the professionals and the type of specialist support that may be necessary. Conclusions and Implications: Although professionals have a lot of knowledge about the specific neurodevelopmental disorders, further evidence-based training would allow more effective support for children with neurodevelopmental disorders in the classroom but also equip professionals better and raise their confidence in meeting these children's needs.

**Database:** CINAHL

**Nasality in Homosexual Men: A Comparison with Heterosexual Men and Women.**

**Author(s):** Vanpoucke, Belle; Cosyns, Marjan; Bettens, Kim; Van Borsel, John

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**Publication Date:** Jul 2019
Several studies reported that pitch and articulation may vary according to a person's sexual orientation. The purpose of this study was to investigate whether homosexual males also demonstrate differences in nasal resonance compared to heterosexual males. Speech samples of 30 self-identified homosexual males, 35 heterosexual males, and 34 heterosexual females were compared both instrumentally and perceptually. Nasalance scores were calculated for the sounds /a/, /i/, /u/, and /m/ and for an oronasal, oral, and nasal text. In addition, the Nasality Severity Index was determined. Spontaneous speech samples were used for a perceptual evaluation of nasal resonance. Neither the nasalance scores nor the Nasality Severity Index were significantly different between the homosexual and heterosexual males. Heterosexual females, on the other hand, showed significantly higher nasalance values for the oronasal and oral text and a significantly lower Nasality Severity Index than both the homosexual and the heterosexual males. The perceptual judgment revealed no significant differences between the three groups. The results of this study suggest that, in contrast to pitch and articulation, nasality does not tend to vary with sexual orientation.

Database: CINAHL