

Global Perspectives in CAPD Conference Platform Papers

CAPD201: Auditory Processing of 4-year-old Children: a Psychoacoustic and MMN study

Abstract: The relationship between CAPDs and developmental language abnormalities is still under debate. To compare auditory processing of non-speech stimuli with that one of speech-containing stimuli and with the electrophysiological correlates of both stimuli classes as obtained by MMN measurements, we developed a psychoacoustic test which reliably tests central auditory processing from age 4 on using non-speech stimuli. Design of the test and the test device as well as normative data will be presented.

Presenter(s): Katrin Neumann, Prof., University of Bochum Contributor(s): Vera Moliadze, University of Frankfurt am Main; Silke Bieck, B.Sc. Cognitive Neuroscience, University of Frankfurt am Main; Johann Oswald, Dr. Eng., Path medical GmbH; Maritza Darquea, University of Frankfurt am Main; Harald Euler, Prof. ret., University of Bochum; Yevgen Zaretsky, Dr. phil., University of Bochum

CAPD202: The Effect of Different Diagnostic Criteria on the Diagnosis of APD

Abstract: The use of different, existing criteria to diagnose APD in 150 participants (94 males and 56 females; aged 9.8 ± 1.9 years) resulted in diagnosis rates ranging from 7.3% for the strictest criteria to 100% for the most lenient criteria. This finding highlights the need for greater consensus on diagnostic criteria for APD, which is more likely to be achieved by greater interdisciplinary evaluation that quantitatively applies both discrepancy and exclusionary criteria.

Presenter(s): Wayne Wilson, PhD, The University of Queensland Contributor(s): Wendy Arnott, PhD, The University of Queensland

CAPD203: Neuroplasticity in Auditory Processing Engendered by Classroom FM System Use

Abstract: What is the biological basis for the benefits associated with classroom FM system use? After FM system use, children with dyslexia improved on phonological awareness and showed increased consistency in auditory brainstem responses to speech. More inconsistent brainstem responses at pre-test predicted greater gain in phonological awareness. Inconsistent neural processing of sound underlies and reflects variability contributing to poor phonological awareness, and FM system use addresses this deficit by directing auditory attention to meaningful sounds.

Presenter(s): Jane Hornickel, B.A., Northwestern University Contributor(s): Steven Zecker, Ph.D., Northwestern University; Nina Kraus, Ph.D., Northwestern University

Global Perspectives in CAPD Conference Posters

CAPD101: (C)APD in Normal-Hearing Adults with Tinnitus

Abstract: This paper examines 18 adults with normal hearing who reported tinnitus and/or hyperacusis symptoms. 7 of the adults suffered a closed head injury while 11 adults reported no significant physical trauma. Analysis of the data revealed that all adults presented with auditory processing deficits. These findings suggest that the tinnitus-related neural responses may be due to (C)APD in normal hearing adults and provides support for the non-classical auditory pathway theory.

Presenter(s): Carol Lau, MA (Aud), Sound idEARS Hearing & Listening Clinic/Vancouver Tinnitus & Hyperacusis Clinic

CAPD102: (C)APD Tests for Non-English Speaking Individuals: It Is Our Business!

Abstract: A need for (C)APD test materials for children exists in South Africa. With this study the significance of an Afrikaans translation of the SCAN-C: Test for Auditory Processing Disorders in Children- Revised was determined. The translated SCAN-C was proven age and culturally appropriate, but not its validity and accuracy as a (C)AP screening instrument. The development of culturally and linguistically appropriate (C)AP test materials for different language and culture groups is therefore indicated.

Presenter(s): Anel Visser, M.Communication Pathology (UP), University of Pretoria

CAPD103: (Central) Auditory Processing Disorder in Children with Chronic Lyme Disease: A Case Study

Abstract: This study illustrates the need for comprehensive audiometric studies, including behavioral measures of (central) auditory processing, in children with chronic Lyme disease and the role of the audiologist in providing a new perspective in the educational planning for children following infection and treatment.

Presenter(s): M. Shannon Hamill, Au.D., Children's Hospital Boston at Lexington

CAPD104: A Comparison of Parent and Teacher Ratings on the Children's Auditory performance Scale (CHAPS)

Abstract: Functional deficits within the central auditory nervous system can result in central auditory processing disorder (CAPD). Screening tools have been found to have poor specificity in identifying CAPD resulting in over-referrals. The Children's Auditory Performance Scale, (CHAPS) is a CAPD screening questionnaire used to identify the listening abilities of children. The purpose of our study is to determine whether parent or teacher responses on the CHAPS are more predictive of diagnosis of CAPD.

Presenter(s): Teri Bellis, Ph.D., University of South Dakota **Contributor(s):** Chelsea Comeaux, B. S., University of South Dakota; Stephanie Havelaar, B.S., University of South Dakota

CAPD105: A Comparative Study of Two Within-Channel and Two Between Channel Gap Detection Assessments in Normal Hearing Young Adults

Abstract: Gap-detection measures are an essential part to a comprehensive battery of assessments for the diagnosis of central auditory processing disorders. The purpose of this study is to compare the performance of 10 young adults with no presenting audiologic concerns and no other co-morbid disorders on two commercially available within-channel gap-detection tests and two new between-channel paradigms developed by the research team.

Presenter(s): Jennie Bellis, University of South Dakota; Allison Root, University of South Dakota; Teri James Bellis, University of South Dakota

CAPD106: Age Effects on Gap Detection Measured Behaviorally and Electrophysiologically

Abstract: Recent research has shown that it is possible to use evoked potentials to evaluate gap detection ability in adults. The aim of the current study was to examine the effects of age on behavioral and electrophysiologic gap detection thresholds. Results showed that older adults had significantly larger gap detection thresholds on both measures compared to younger adults. However, there was no significant difference between measures within groups. Clinical implications and future directions are discussed.

Presenter(s): Shannon Palmer, AuD, PhD, Central Michigan University **Contributor(s):** Frank Musiek, PhD, University of Connecticut

CAPD107: An Auditory Processing Test Battery To Evaluate Spanish-speaking Children

Abstract: The aim of this research was to develop and obtain initial normative data for AP tests for Spanish-speaking children aged between 7 and 11 years. A test battery was developed, comprised of speech-in-noise, filtered speech and dichotic words. A total of 100 normal-hearing children from Chile were selected. Percentiles were computed and 90th percentiles are suggested as initial normative data for these AP tests, for Spanish-speaking children.

Presenter(s): Adrian Fuente, The University of Queensland

CAPD108: An Investigation of the Relationship of ABR Wave V to NaPa of the MLR

Abstract: This study aimed to examine the relationships between simultaneously run ABRs and MLRs and to develop normative data. Waveforms were run at 5.7 and 17.7 clicks per second and 35 and 70 dB n HL on 12 normal hearing subjects. Effects of repetition rate and intensity on absolute latencies, interwave latencies, and amplitude ratios between ABR and MLR were examined. MLR was dramatically more affected by changes in repetition rate than ABR wave V.

Presenter(s): Erin Wierzbinski, University of Connecticut **Contributor(s):** Krista Davison, B.S., University of Connecticut; Jennifer Gonzalez, B.A., University of Connecticut; Frank Musiek, Ph.D., University of Connecticut

CAPD109: Auditory Afferent and Efferent Assessment Post Functional Hemispherectomy: A Case Report

Abstract: We investigated the auditory processing abilities in a ten year old female after a left functional hemispherectomy. Behavioral and electrophysiological tests, assessing both afferent and efferent auditory pathways were administered. Dichotic test results were consistent with site of lesion. Electrophysiological results included normal ABR and ALER and a left temporal-lobe electrode effect was present in the AMLR. Efferent testing was normal. This case demonstrates behavioral and electrophysiological test results in relation to a documented lesion.

Presenter(s): Annette Hurley, LSU Health Sciences Center **Contributor(s):** Robert Turner, PhD, LSU Health Sciences Center; Eric Arriaga, B.S., LSU Health Sciences Center; Amanda Troyer, B.A., LSU Health Sciences Center

CAPD110: Auditory Agnosia due to Posterior Fossa Glioma

Abstract: We report the case of a 42 year old gentleman diagnosed with high grade brainstem glioma. Immediately following biopsy, the patient developed symptoms compatible with auditory agnosia, which was confirmed using standard baseline and central auditory tests. Interestingly, a few weeks later, following completion of chemotherapy, he noticed an improvement with his auditory symptoms. This was confirmed on repeat testing. This case highlights that auditory agnosia may result from brainstem lesions and can be reversible.

Presenter(s): Vasuky Sriskandarajah, MRCP, National Hospital for Neurology & Neurosurgery; Doris - Eva Bamiou, MD, MSc, PhD, National Hospital for Neurology & Neurosurgery

CAPD111: Auditory Cortical Processing in Noise for Younger and Older Adults

Abstract: This investigation compared hearing-in-noise abilities using late auditory evoked potentials between normal-hearing younger adults, normal-hearing older adults, and hearing-impaired older adults. Results indicate age-related changes in hearing-in-noise abilities in older adults with and without hearing loss compared to younger adults with normal hearing. This data demonstrates changes in higher order neural processing in noise in normal-hearing young adults, normal-hearing older adults, and hearing-impaired older adults which may not be evident from behavioral testing alone.

Presenter(s): Jennifer McCullagh, Southern Connecticut State University Contributor(s): Jennifer Shinn, University of Kentucky

CAPD112: Auditory Efficiency; A Different Perspective When Considering Auditory Processing Disorders

Abstract: Auditory efficiency is offered as an alternative concept when considering auditory dysfunction. It is argued that the current state of knowledge of auditory function is inadequate to differentiate peripheral from central processes, and that an emphasis on diagnostic labels may hinder intervention. Focus is on a description of auditory capabilities of an individual, allowing appropriate intervention regardless of the diagnostic category. The concept also accommodates auditory inefficiencies associated with neuromaturational delay in children.

Presenter(s): Richard Bishop, Au.D., Macroaudiology Ltd

CAPD113: Auditory Processing And Suppression Of Otoacoustic Emissions In Developmental Dyslexia Children

Abstract: The main objective of this study was to analyze the auditory processing(AP) and the suppression effect of transient otoacoustic emission in children with dyslexia, and analyze the effect of phonological, reading and writing remediation program in the AP. Children with dyslexia from this study presented alteration in AP tests, mainly in auditory ability of temporal ordering. Phonological, reading and writing remediation were able to improve the auditory abilities of children with dyslexia from this study.

Presenter(s): Maria Francisca Colella-Santos, phd, Campinas State University **Contributor(s):** Marina Belloni Galeti, master, Campinas State University; Cintia Salgado-Azoni, phd, Campinas State University; Silvia Maria Sciasca, phd, Campinas State Univ

CAPD114: Auditory Processing Disorder And Auditory Training In Noise: A One-to-one Intervention

Abstract: The effectiveness of the interventions among children with auditory processing disorder (APD) is not well documented. There is little scientific studies assessing the benefits of direct intervention in this population. The main objective of this study is to examine the effectiveness of an auditory training program in noise for children with APD. This program was selected because a majority of children with APD have difficulty understanding speech in a noisy environment.

Presenter(s): Mojgan Owliaey, Audiologist, Institut Raymond Dewar **Contributor(s):** Mélanie Gagnon, Audiologist, Centre Montérégien de Readaptation; Chloé Phoenix, Audiologist, Centre Hospitalier Régional du Grand-Partage; Benoît Jutras, Associate Profe

CAPD115: Auditory Processing Disorder or Disordered Auditory Processing?

Abstract: Data from 158 (C)APD children was examined for co-morbid sensory or visual processing deficits. 48.7% had also been diagnosed with either sensory or visual processing deficits; 10.8% had both sensory and visual processing deficits. The findings suggest that (C)APD may not exist as a specific, defined diagnostic entity but rather as a part of a larger deficit in the general processing of sensory information. Clinical and research implications are discussed.

Presenter(s): Carol Lau, MA (Aud), Sound idEARS Hearing & Listening Clinic/Vancouver Tinnitus & Hyperacusis Clinic

CAPD116: Auditory Processing In Children In a Social Vulnerability Situation

Abstract: The behavioral auditory processing tests was applied to a group of 27 individuals, subdivided in 11 children and 16 adolescents, both gender, at risk and social vulnerability (study group), and compared to a control group of 10 children and 11 adolescents matched by age, with no complaints. The results showed poor performance of study group for the behavioral auditory processing tests, in spite of their having integrity of the auditory brainstem pathways.

Presenter(s): Cristina Murphy, São Paulo University **Contributor(s):** Fernanda Pontes, São Paulo University; Luciene Stivanin, São Paulo University; Erica Picoli, São Paulo University; Eliane Schochat, São Paulo University

CAPD117: Auditory Training Efficacy in Auditory Processing Disorder

Abstract: In order to verify the effectiveness of FAT in individuals with APD, this study performed qualitative and quantitative analyses on auditory skills, before and after FAT, of children and adults with different complaints. The FAT was effective in the rehabilitation of individuals with APD, regardless of the complaint - statistically significant differences in performance on behavioral tests before and after FAT were observed.

Presenter(s): Ivone Lobo, PhD, Universidade de São Paulo; Eliane Schochat, PhD, Universidade de São Paulo **Contributor(s):** Carolina Ferreira, Graduate student, Universidade de São Paulo; Mayara Nascimento, Graduate student, Universidade de São Paulo

CAPD118: Central Auditory Processing: The Impact Of Otitis Media

Abstract: Otitis Media is one of the most common infectious diseases in early childhood. The middle ear inflammation can cause changes in the peripheral auditory system. The study was accomplished to rank central auditory processing test findings according to the type of disorder. The children were divided into two groups with and without Otitis Media history. With this procedure we clarified that children who underwent surgery for tympanostomy tubes showed variations in the auditory processing tests.

Presenter(s): Leticia Borges, master's student in child/teen health, Universidade Estadual de Campinas (UNICAMP) **Contributor(s):** Jorge Paschoal, Ph. D, throat, ear and nose, Universidade Estadual de Campinas (UNICAMP); Maria Francisca Collela-Santos,

CAPD119: Characteristics of the N1-P2 On-Off Evoked Response Using Broadband Stimuli

Abstract: The onset and offset N1-P2 evoked response to broadband noise stimuli was studied in 8 human subjects with normal hearing sensitivity. Of the multiple parameters investigated, intensity affected the on- but not the off-response in regard to latency while affecting N1-P2 amplitude overall. Varying duration of the stimulus was also a factor in the off-response in regard to latency and waveform morphology. These and other onset-offset relationships as well as physiologic mechanisms will be discussed.

Presenter(s): Jennifer Gonzalez, B.A., University of Connecticut **Contributor(s):** Frank Musiek, Ph.D., University of Connecticut

CAPD120: Clinical Findings of a Web-Based Application to train Dichotic Listening Skills

Abstract: The benefits of dichotic listening training are well documented but its broad application has been limited. This study looks at the findings of 31 (C)APD children who used a web-based, dichotic training application from home while having their progress monitored daily over the internet. Comparison between pre- and post-training performance reveal significant improvements and suggests that the web-based dichotic training program may be an effective treatment tool for (C)APD.

Presenter(s): Carol Lau, MA (Aud), Sound idEARS Hearing & Listening Clinic/Vancouver Tinnitus & Hyperacusis Clinic

CAPD121: Contribution of Scale Auditory Behavior (SAB) in the diagnosis of Auditory Processing Disorder in Portuguese Children.

Abstract: Studies in auditory processing in Portugal are recent. We evaluated 51 portuguese children, 10-13 years. They all did evaluations of peripheral hearing and central auditory assessment through behavioral tests, also Scale Auditory Behavior (SAB). Pearson's correlation between the SAB values and the auditory processing assessment values, it was found a positive correlation in 7 tests. This study showed that the use of the SAB can contribute effectively in a clinical indication for auditory assessment.

Presenter(s): Cristiane Nunes, Minho University - Portugal **Contributor(s):** Pereira Liliane, Professor, São Paulo Federal University; Graça Carvalho, Minho University - Portugal

CAPD122: Correlations of Reported Hearing Difficulties/ Hyperacusis and Auditory Tests in Adults with Normal Hearing

Abstract: Correlation between hearing difficulties/ hyperacusis and auditory tests in patients with normal hearing

Presenter(s): Chrysa Spyridakou, Audiovestibular Physician, Ear institute **Contributor(s):** Linda Luxon, Emeritus Professor Audiovestibular Medicine, National Hospital Neurology and Neurosurgery/ Ear Institute; Doris Bamiou, Audiovestibular Physician, N

CAPD123: Diagnosing Auditory Processing Disorders And Comorbid Attention Disorders

Abstract: Diagnosing auditory processing disorders (APD) is a complex procedure, because many possible comorbid disorders should be taken into account. One of these comorbid disorders is an attentional disorder. This study shows how results from an additional test procedure (TEA-Ch) influence the diagnosis of children with suspected auditory processing disorders.

Presenter(s): Karin Neijenhuis, Royal Auris Group **Contributor(s):** André Goedegebure, Erasmus Medical Center

CAPD124: Diagnosing Modality-specific Auditory Processing Deficits In Young Children

Abstract: This study describes a new method for measuring auditory processing deficits in young children. Influence of inattention is minimized by using an interactive computer test with an attractive virtual environment. A visual unmasking test is added to compare performance between the auditory and visual modality. A significant age dependency is found for all tested children. Moreover, children suspected for auditory-processing deficits perform poorer on the auditory unmasking test compared to the visual unmasking test.

Presenter(s): André Goedegebure, Phd, Erasmus Medical Center **Contributor(s):** J. Gerard Borst, MD Phd, Erasmus Medical Center

CAPD125: Difference in Auditory Temporal Resolution Between Young and Elderly Women

Abstract: The difference in temporal resolution between young and elderly adults with essentially normal hearing was investigated using two gap detection tests and the release of masking revealed by word recognition under continuous and interrupted noise. There was a significant difference in gap detection thresholds and word recognition scores in noise between the two age groups, but the gap detection thresholds and the release of masking did not show any significant correlation, suggesting different underlying mechanism.

Presenter(s): Maki Uemae, Kitasato University **Contributor(s):** Toshimasa Matsuhira, Kitasato University

CAPD126: Effect of Contralateral Noise on the LAEP in Children with (C)APD

Abstract: One of the characteristics of children with (C)APD is difficulty hearing in background noise. The auditory efferent system has been hypothesized to aid in this task. We examined the effect of contralateral noise on the late auditory evoked potential (LAEP) recording in a group of children with (C)APD and control group in order to study the efferent effect. Noise had a negative effect on the N1/P2 amplitude and the P3 latency for both groups.

Presenter(s): Annette Hurley, PhD, LSU Health Sciences Center **Contributor(s):** Shrutee Bhatt, B.S., LSU Health Sciences Center; Bradley Davis, AuD, LSU Health Sciences Center; Robert Turner, PhD, LSU Health Sciences Center

CAPD127: Effects of Hearing Loss and Cognitive Decline on Central Auditory Dysfunction in Alzheimer's Disease

Abstract: Central auditory function was evaluated in ten elderly individuals with Alzheimer's disease and seven elderly controls without Alzheimer's disease. SCAN-A testing for auditory processing disorders was completed in all elderly subjects and scores were arc sine transformed for normal distribution purposes. Results indicated significantly lower performance in the Alzheimer's group (re: controls), left ear deficits in the Alzheimer's group, and significantly poorer performance across all auditory processing skills for the Alzheimer's group (re: controls).

Presenter(s): Sridhar Krishnamurti, Auburn University; Emily Marshall, B.S., Auburn University
Contributor(s): Rebecca Snell, B.S., Auburn University

CAPD128: Effects of Maturation on a Behavioral Test Battery of Auditory Processing

Abstract: Data was collected on typically developing, normal hearing children between 7 and 12 years of age (n = 28) using a concise yet comprehensive battery of behavioral tests of auditory processing including the Frequency Pattern Test, Duration Pattern Test, Random Gap Detection Test, Dichotic Digits Test, Compressed and Reverberated Words, and Masking Level Difference. Maturation effects were analyzed using MANOVA to identify differences in performance between three age groups of children. Results will be discussed.

Presenter(s): Lisa Dau, Towson University **Contributor(s):** Jennifer Smart, Ph.D., Towson University; Andrea Kelly, MAuD, PhD, MNZAS, University of Auckland; Diana Emanuel, Ph.D., CCC-A, Towson University

CAPD129: Evaluation of Central Auditory Function in Ischemic Stroke Patients

Abstract: Evaluation of Central Auditory Function in Ischemic Stroke Patients - The present study was designed to evaluate central auditory function in ischemic stroke patients. Twenty seven patients with ischemic stroke affecting different areas in the brain were examined. They were evaluated using a battery of psychophysical & electrophysiological tests. The results showed reduced scores of both tests which reflect impaired central auditory function in ischemic stroke patients.

Presenter(s): somaia Ali, Medical degree,MD, Ain Shams university **Contributor(s):** Iman Eldanasoury, Medical degree,MD, Ain Shams university

CAPD130: Expanding The Current APD Test Battery To Include Spectral And Temporal Processing

Abstract: We assessed a group of school age children with and without listening concerns on behavioural tests of Spectral and temporal processing. The results indicated temporal envelope and fine structure processing deficits in children with listening concerns. These findings recommend including additional tasks assessing temporal envelope and fine structure as part of the standard APD test battery.

Presenter(s): Mridula Sharma, PhD, Macquarie University **Contributor(s):** Imran Dhamani, MSc, Macquarie University; Varghese Peter, PhD, Macquarie University; kogo Wong, MSc, Australian Hearing; Vijaya Narne, PhD, All India Institute of Speech and Hear

CAPD131: Gap Detection Thresholds in Children with Auditory Processing Disorder

Abstract: Within- and across-channel (WC and AC) gap detection thresholds (GDTs) were established in children with auditory processing disorder (APD). WC GDTs were larger than AC GDTs. A weak correlation was found between WC and AC GDTs. Both WC and AC GDTs significantly correlated with speech understanding in noise. WC and AC GDTs may represent different processes and both may contribute to speech processing. Both measures should be considered when developing an APD test battery.

Presenter(s): Susan Fulton, Ph.D., University of South Florida Sarasota-Manatee; Mary Ann Littrell, Au.D., All Children's Hospital **Contributor(s):** Jennifer Lister, Ph.D., University of South Florida

CAPD132: Improving Figure/Ground Separation With A Listening In Noise Training Software In Children With Central Auditory Processing Disorder

Abstract: Children with central auditory processing disorder (CAPD) experience learning difficulties because of their hearing disorder. Intervention in children with CAPD is essential to increase their chances for successful learning. However, the efficacy of treatment in children with CAPD is not well known. The present study aims to examine the efficacy of treatment therapy in children with CAPD using a software.

Presenter(s): Benoit Jutras, Ph.D., Université de Montréal **Contributor(s):** Lyne Lafontaine, M.O.A., Regional Support Services – Hearing Disorders; Marie-Pier East, M.P.A., Université de Montréal

CAPD133: Influence Of Sensory Modality In Sustained Attention Tests in children

Abstract: Auditory and visual sustained attention test was applied in 34 children (7 to 12 years old) in order to investigate the influence of different sensory modalities in sustained attention tests. Both tests were developed and applied through the Software E-Prime Professional. Children had poor performance in auditory attention test comparing to the visual attention test, with slower response times and more errors. Moreover, there was a fair correlation between proportions of errors in both modalities.

Presenter(s): Cristina Murphy, Universidade de São Paulo **Contributor(s):** Caroline Nunes Rocha, Universidade de São Paulo; Eliane Schochat, Universidade de São Paulo

CAPD134: Interaural Asymmetry Using Dichotic Filtered Words in Children with Suspected APD

Abstract: Recognizing the need for behavioral auditory processing disorder (APD) tests to approximate contributions of auditory and non auditory-specific variables on performance, this study explored the utility of dichotic low-pass filtered words (DFWs) presented in divided-attention and directed-attention listening modes. When the degree of interaural asymmetry of children with suspected APD was compared to a control group, three performance profiles were observed. DFWs show promise as a stimulus sensitive to the identification of excessive interaural asymmetry.

Presenter(s): Lisa Huston, B.A., University of Texas at Dallas/ Mayo Clinic Arizona; Jeffrey Martin, Ph.D., University of Texas at Dallas **Contributor(s):** Keiko Gibson, B.A., University of Texas at Dallas

CAPD135: Investigating Current And Future Service Provision For Children With CAPD in Ireland.

Abstract: This research was prompted by a perceived gap in services for children with CAPD in Ireland. Using quantitative methodology in Phase 1 current levels of service provision were investigated. In Phase 2 the steps required to develop an integrated service were identified using qualitative methodology. A 53% response rate in Phase 1 confirmed a lack of service provision. Phase 2 yielded several recommendations to develop an integrated service including interdisciplinary education on CAPD.

Presenter(s): Maria Logue-Kennedy, National University of Ireland **Contributor(s):** Rena Lyons, National University of Ireland; Clare Carroll, National University of Ireland; Mary Byrne, National University of Ireland; Eilis Dignan, Health Services Exec

CAPD136: Learning Abilities And Central Auditory Processing In Children With Epilepsy

Abstract: Abstract: Central auditory processing disorder is a deficit in the processing of auditory information, despite normal hearing thresholds. Children with epilepsy can have abnormalities in phonologic work memory, phonologic awareness, reading and auditory processing skills. Epileptic discharges around language areas may jeopardize the functioning of these areas leading to learning disabilities and deficit in auditory processing.

Presenter(s): Mirela Boscaroli, PhD, University of Campinas (UNICAMP) **Contributor(s):** Maria Amaral, PhD student, University of Campinas (UNICAMP); Raquel Casali, PhD student, University of Campinas (UNICAMP); Luciane Lunardi, PhD student, University of

CAPD137: Linguistic Plausibility & REA: Recognition vs. Imitation Dichotic ERP Study

Abstract: The direction and magnitude of interaural asymmetry on dichotic listening tests is regarded as an index of central auditory nervous system integrity and maturation. For young adults with normal hearing sensitivity and using dichotic pairs of real and pseudo words as stimuli, we found an imitation response mode differentially altered the magnitude of observed interaural asymmetry in event-related potential (ERP) waveforms elicited when the pseudo word was presented to the right side ($p < 0.0339$).

Presenter(s): Keiko Gibson, B.A., The University of Texas at Dallas **Contributor(s):** Jeffrey Martin, Ph.D., The University of Texas at Dallas; Anna Mortensen, M.A., The University of Texas at Dallas

CAPD138: Long-Term Maintenance of Auditory Skills After Auditory Training

Abstract: The purpose of this study was to investigate the maintenance of auditory skills after a period from the end of AT in order to verify its long-term benefits. Although there has been little change in the responses of auditory processing behavioral tests after AT, these variations were not statistically significant. The maintenance of auditory skills demonstrates the long-term effects of AT, which is based on neural plasticity.

Presenter(s): Eliane Schochat, PhD, Universidade de São Paulo **Contributor(s):** Ivone Lobo, PhD, Universidade de São Paulo; Natália Brito, Graduate student, Universidade de São Paulo

CAPD139: Perceptual Effort Effects on Attended and Unattended Auditory Memory

Abstract: This study used filtered speech to investigate the effects of increased perceptual effort on attended and sensory auditory memory function in young adults. A number list recall task at short recall delays showed filtered speech significantly decreased performance on an attended but not an ignored speech task. The findings suggest that increased perceptual effort influences attended but not sensory memory function.

Presenter(s): Anna Mortensen, University of Texas at Dallas **Contributor(s):** Jeffrey Martin, Ph.D., University of Texas at Dallas

CAPD140: Performance Of Children Born Preterm In Behavioral Assessment Of Hearing: Temporal Processing And Localization

Abstract: ABSTRACT Purpose: correlate the performance of children born preterm in behavioral hearing assessment and the assessment of auditory processing evaluation. Methods: 16 children born preterm were submitted to behavioral hearing assessment at 12 months age and auditory processing assessment with four to seven years of age. Results: The delay in sound localization ability was associated statistically to temporal processing deficits. Conclusion: Delay in sound localization is associated to deficits on the mechanism of temporal processing.

Presenter(s): Liliane Desgualdo Pereira, Federal University of São Paulo **Contributor(s):** Julia Gallo, Federal University of São Paulo; Karin Ziliotto Dias, Federal University of São Paulo; Marisa Frasson Azevedo, Federal University of São Paulo; E

CAPD141: Relations Between Speech, Language And Auditory Processing In 4 To 7-year-old Children

Abstract: Diagnosing auditory processing disorders (APD) in children below 7 years is challenging because of several factors, one of them being comorbid disorders. In this presentation, results will be shown from several studies in children with speech-language disorders and phonological disorders, compared to children with primary auditory complaints (suspected of APD) and typically developing children.

Presenter(s): Karin Neijenhuis, PhD, Royal Auris Group **Contributor(s):** Jessica van Herel-de Frel, MA, Royal Auris Group

CAPD142: Relationship Between Stapedial Reflex And Auditory Processing Disorders

Abstract: The complexity of the neural mechanism involved in the nervous circuits of the stapedial reflex arc is related to the mechanisms involved in the abilities of hearing, detection, attention and understanding of the speech.

Presenter(s): Mônica Castro, PhD, Universidade de Franca Contributor(s): Paolla Leles, Student, Universidade de Franca; Suzelaine Pacheco, Student, Universidade de Franca; Ana Claudia Reis, PhD, Universidade de São Paulo; Erika Matias, Teacher, Univer

CAPD143: Right and Left Ear Advantage in Dichotic Listening: an fMRI and DTI study

Abstract: Functional MRI and diffusion tensor imaging data were acquired from 24 children, ages 7-14 years with either right or left ear advantage (REA/LEA) on the dichotic competing words subtest. Different functional activation and white matter organization were observed and the behavioral outcomes (REA, LEA) were predicted by using a novel machine learning technique: multi-voxel pattern analysis (MVPA), on neuroimaging data. The interaction between structural factors and attentional influence are discussed.

Presenter(s): Rola Farah, MA Audiology and Speech Language Pathology, University of Cincinnati
Contributor(s): Vincent Schmithorst, PhD, Cincinnati Children's Hospital Medical Center; Robert Keith, PhD, University of Cincinnati

CAPD144: Sensitivity, Specificity and Efficiency of Speech-Evoked ABR

Abstract: The purpose of the study was to determine the sensitivity, specificity and efficiency of Speech-Evoked ABR (BioMARK) as a diagnostic support for (Central) Auditory Processing Disorder (C)APD and Specific Language Impairment (SLI). Seventy five children aged from 6 to 12 years, divided in three groups (Typical Development, (C)APD and SLI) participated. The waveforms that exhibited better accuracy were A for (C)APD and A, D and O for SLI. In conclusion, Speech-Evoked ABR was useful test in identifying (C)APD and language impairment.

Presenter(s): Caroline Rocha, PhD Candidate, Universidade de Sao Paulo Contributor(s): Débora Befi-Lopes, PhD, associate professor, Universidade de Sao Paulo; Eliane Schochat, PhD, Associate Professor, Universidade de Sao Paulo

CAPD145: Should APD Evaluations be expanded to Individuals on the Spectrum?

Abstract: Should Auditory Processing Evaluations be Expanded to Include Individuals on the Spectrum? The session will describe the auditory processing deficits experienced by individuals on the autistic spectrum. According to the reports, CAPD can only be diagnosed in individuals with normal intelligence

and normal hearing. However, it is of interest to explore the nature, severity of the auditory processing disorder in ASD to determine rehabilitation approaches. The reviewed literature and clinical case studies will be presented..

Presenter(s): Donna Geffner, St. John's University; Deborah Ross-Swain, Ed.D, The Swain Center

CAPD146: Spatial Listening in Children with a History of Otitis Media with Effusion

Abstract: The spatial listening abilities of 17 6 year-old children with a history of otitis media with effusion (OME) were assessed. A specific performance deficit in identifying target sentences in the presence of spatially separated competing speech was found. Conversely, sentence recognition in the presence of spatially coincident competing speech was not significantly poorer than age-appropriate norms. The results may have important implications for auditory processing difficulties in young children with a history of OME.

Presenter(s): Sarosh Kapadia, PhD, Flinders University, Australia Contributor(s): Danielle Godden, MAud, Flinders University, Australia; Janelle Harvey, MAud, Flinders University, Australia; Neetu Satyanarayana, MAud, Flinders University, Australia; A

CAPD147: Speech-Evoked Auditory Brainstem Responses (sABR) from Children in Quiet and Noise

Abstract: We examined effects of noise on the sABR in a group of normal hearing children with a specially developed custom insert earphone permitting measurement in quiet and noise. Data analysis indicated increased deficit with noise. The present commercially available system prevents analysis of sABR when noise and speech stimuli are presented through one transducer. The custom insert allows for this analysis. This study depicts the ease of sABR measurements with noise in the clinical setting.

Presenter(s): Amy Badstubner, B.M., MT-BC, University of Florida; Kari Morgenstein, B.S., University of Florida Contributor(s): James Hall, III, Ph.D., University of Florida; Colleen Le Prell, Ph.D., University of Florida; Peggy Jimenez, Ph.D. Candidat

CAPD148: Stroke Of The Central Auditory Pathway: Patient Reported Auditory Function

Abstract: A hearing questionnaire and central auditory tests were administered to 21 non-aphasic patients with stroke of the auditory brain and 23 normal controls. Stroke patients reported significantly greater problems with speech in quiet & in noise, sound recognition and localisation than normals. Nine out of 21 cases had severe functional limitation (z score >3) in sound recognition and localization. Localization and recognition scores showed a moderate to strong correlation with dichotic digits and pattern tests.

Presenter(s): Doris-Eva Bamiou, Ear institute -University College London; Martin Brown, Institute of Neurology UCL **Contributor(s):** David Werring, Institute of Neurology -University College London; Karen Cox, National Hospital for Neurology; John Steve

CAPD149: Symptoms of Hearing Loss in a Patient Following a Stroke of the Primary Auditory Cortex Resulting in a Central Auditory Processing Disorder

Abstract: A middle aged male presented with complaints of right sided hearing loss following a left temporoparietal hemorrhage involving the middle cerebral artery. Routine audiometric results were normal. MLRs indicated a significant asymmetry, and Dichotic Central tests were abnormal in the right ear. A rehabilitation plan was developed for the patient, following which he reported improved ability to hear from the right ear and showed improvement on the central tests.

Presenter(s): Linda Guenette, MA, University of Connecticut **Contributor(s):** Frank Musiek, PhD, University of Connecticut; Krista Fitzgerald, B.A., University of Connecticut

CAPD150: Systematic Review of Computer-based Auditory Training (CBAT)

Abstract: A systematic review of the evidence for CBAT in children with language- and reading-related learning difficulties. Sixteen studies of Fast ForWord (FFW) and Earobics and 5 further studies of other non-speech and simple speech sounds training were identified. Apart from phonological awareness skills, FFW and Earobics seem to have little effect, while other training programs may improve reading. There is some initial evidence to suggest that CBAT may benefit children with Auditory Processing Disorder.

Presenter(s): Nicci Campbell, University of Southampton **Contributor(s):** Jenny Loo, National University Hospital; Doris-Eva Bamiou, University College London Ear Institute; Linda Luxon, University College London Ear Institute

CAPD151: TBOAE Suppression In Auditory Processing Disorders

Abstract: This study aims to investigate the suppression of tone burst evoked otoacoustic (TBOAE) emissions in fifty children (aged 9-10) with auditory processing disorders (APD), by 1, 2 and 4 kHz tone bursts with white noise in contralateral ear. Significant differences were found between the control group and APD group to 2 kHz tone burst ($p < 0.05$). This procedure was efficient to identify suppression effect in children at sites along the cochlear partition corresponding to their frequency.

Presenter(s): Fernanda Burguetti, PhD, University of Sao Paulo **Contributor(s):** Seisse Sanches, PhD, University of Sao Paulo; Renata Carvalho, PhD, University of Sao Paulo

CAPD152: Temporal Processing and Dichotic Listening of Musicians versus Non-Musicians

Abstract: The performance of ten musicians and ten non-musicians on tests of dichotic listening (3-pair DDT, DCVT) and tests of temporal processing (FPT, DPT, GiN test) was compared. Analysis using the Mann-Whitney and Wilcoxon Signed Ranks tests showed significantly better scores for musicians, with non-musicians showing a significant right ear advantage for the dichotic tests, but no ear advantage for musicians. These findings support further research examining the value of music-based training for Auditory Processing Disorder.

Presenter(s): Nicci Campbell, University of Southampton **Contributor(s):** Paula Firth, Department of Audiology, Royal Sussex County Hospital

CAPD153: TEOAE Responses and Ear Asymmetries in Children with and without Auditory Processing Disorders.

Abstract: Transient evoked otoacoustic emissions (TEOAEs) were measured in children referred for assessment for APD. Children diagnosed with APD ($n=47$) had stronger responses in the right ear than those not diagnosed with APD ($n=42$). Results for the left ears were similar. TEOAE results did not correlate with hearing acuity in either group. Links between OAE results and ear dominance during dichotic listening may prove useful in APD differential diagnostics.

Presenter(s): Stephanie Sanders, University of Pittsburgh **Contributor(s):** Deborah Moncrieff, Ph.D, University of Pittsburgh

CAPD154: The Effect of Filter Level on Word versus Nonsense Word Repetition

Abstract: The performance of 57 normally hearing, young adult, native Australian English speaking females on tests of low-pass filtered real words and nonsense words was dependant on the level of filtering, with word performance being better at milder filter levels but nonsense word performance being better at harsher filter levels. A possible explanation for this finding could lie in the dual route model of word repetition (Hanley, Kay & Edwards, 2002).

Presenter(s): Wendy Arnott, PhD, The University of Queensland **Contributor(s):** Wayne Wilson, The University of Queensland; Andrew Bradley, PhD, The University of Queensland; Andrew Smith, BEng, The University of Queensland; Tara Goli, BSpPath, The Univ

CAPD155: The Effectiveness Of A Home-based Computerized Auditory Training Programme For Children With Auditory Processing Disorder (APD)

Abstract: A prospective study examined the effectiveness of a home-based computerized auditory training programme for children with APD. The sustainability of the training effect and measures predictive of the outcome were also examined. The trained group showed greater improvement in the AP and functional listening skills than the untrained controls; such improvement lasted for at least 3 months. Neither the language nor cognitive skills, but the initial AP, was predictive of the training outcome.

Presenter(s): Jenny Loo, PhD, University College London, Ear Institute **Contributor(s):** Doris-Eva Bamiou, MD, PhD, University College London, Ear Institute; Stuart Rosen, PhD, University College London, Speech, Hearing and Phonetic Sciences

CAPD156: The Effects of Effortful Listening on Memory for Prescription Instructions

Abstract: We investigated how age-related-hearing loss contributed to memory deficits and whether an enhanced auditory message facilitated memory. Recall of instructions presented in various degraded conditions were compared for older to younger adults. Different enhancements: expanded speech - 120% of original recording, and clear speech technique were tested for both groups. Results suggest that enhancements of the auditory message during encoding facilitated memory at retrieval, more for the hearing-impaired. Further results and suggested intervention will be discussed.

Presenter(s): Roberta DiDonato, MSPA, Memorial University of Newfoundland **Contributor(s):** Aimee Surprenant, PhD, Memorial University of Newfoundland; Ian Neath, PhD, Memorial University of Newfoundland

CAPD157: The Impact of Auditory Processing Disorders

Abstract: 96 children with varying degrees of listening concern were assessed using an Auditory Processing Disorder (APD) test battery. In order to determine the relationship between scores on established tests of APDs and the impact of these abilities on listening difficulties, questionnaires were also collected, along with measures of academic progress. Significant correlations were found between test performance, listening difficulty and academic progress. Weak correlations were demonstrated between APD tests scores and memory, attention and cognition.

Presenter(s): Dani Tomlin, BSc (Hons), MClAud, The Hearing CRC & The University of Melbourne

CAPD158: The Impacts of Linguistic Background and Language Competency in Auditory Processing Assessment

Abstract: A retrospective review of clinical database with information concerning 133 multilingual and 71 monolingual children aged 7-12 years old. The linguistic background and competency of children significantly affect the performance in highly linguistically-loaded AP tests (CS and LPFW) but neither in non-speech tests (FPT, RGDT, and MLD) nor those with minimal linguistic demands (DDT). The findings suggest non-speech tests may thus be more appropriate in the construction of a universally applicable AP test battery.

Presenter(s): Jenny Loo, University College London **Contributor(s):** Stuart Rosen, University College London; Doris-Eva Bamiou, University College London

CAPD159: Time Compressed Speech In Normal Hearing Children

Abstract: The aim of the study was to obtain time compressed speech test (TCS) standardization for Brazilian Portuguese speaker children. There were 30 individuals aged between 8 and 10 years. Participants were divided into three groups. The TCS test was consisted of monosyllable and disyllable word lists is compressed to 60%. It was concluded that the mean score for these groups was around 80% of correct responses, and this value could be used as a standard.

Presenter(s): Camila Rabelo, PhD, University of Sao Paulo; Eliane Schochat, PhD, University of Sao Paulo
Contributor(s): Flavia Cassas, University of Sao Paulo

CAPD160: TLC-APDQ: Novel Differential Screening for APD

Abstract: A 52 item parent-teacher rated screening questionnaire was developed to detect problematic listeners. Auditory processing, attention and language learning issues were assigned to three scales confirmed by factor analysis. Seventy-two clinical subjects and 198 normal controls age 7 to 17 allowed robust psychometric measures. Normals were clearly differentiated from clinical subjects while preliminary data suggests satisfactory sensitivity and specificity when scale score patterns are used to differentiate students with (C)APD, ADHD and Language Learning Disabilities.

Presenter(s): Brian O'Hara, M.D., University of Hawaii

CAPD161: Towards an Method to Assess an Objective Measure Describing Temporal Processing by using the Auditory Steady State Response

Abstract: Nowadays auditory processing disorders can only be assessed by psychophysical tests. Attention and cooperation of the subjects play an important role in the outcome of these tests. To exclude these influencing factors there is a real need for an objective method to describe the auditory processing. Therefore this study aims at the development of an electrophysiological method to assess an objective measure for temporal processing, using the auditory steady state response (ASSR).

Presenter(s): Jantien Vroegop, Erasmus Medical Centre Rotterdam **Contributor(s):** André Goedegebure, Erasmus Medical Centre Rotterdam

CAPD162: Visual cues facilitate listening in noise in children with Auditory Processing Disorders

Abstract: This research aims to investigate the effect of background noise on the cortical auditory evoked potentials (CAEPs) in school-aged children with APD compared to children with no listening difficulties (aged 7-12 years). Results showed that visual cues enhance the perception of auditory stimuli for children with APD and reduces the significant difference in CAEP amplitude between the Control and the APD group.

Presenter(s): Mridula Sharma, Macquarie University **Contributor(s):** Pia Gyldenkerne, MSc, Macquarie University; Suzanne Purdy, PhD, University of Auckland; Harvey Dillon, PhD, Macquarie University