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# BOOK OF ABSTRACTS

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4th Congress of Baltic Speech and Language Therapists

**EAT SAFE, SPEAK BRAVE!**



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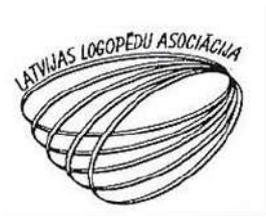
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## General Information

The Speech Therapists' Association of Latvia welcomes researchers, practitioners, and students to the IV Speech and Language Therapists' congress of the Baltic States "Eat safe, speak brave!"

The topic of swallowing disorders is relatively new in the Baltic countries, and therefore there are many challenging questions in a field of assessment and therapy. The purpose of the congress is to share interdisciplinary knowledge, experience and attitudes to swallowing disorders in children and adults, as well as to other important issues in current speech and language therapy. The additional purpose of the congress is to encourage the involvement of a new speech and language therapists' generation to scientific work.

I hope that congress speeches and attendance of various workshops will improve theoretical and practical knowledge about swallowing disorders and will give an opportunity to offer better service for our clients.

Let's spend the last days of the winter in Riga!

On behalf of the Latvian Organizing Committee

**Baiba Trinite, PhD**

President of Speech Therapists' Association of Latvia

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BALTMEDICA



## Keynote Speakers

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**Frédéric MARTIN**  
Speech-Language Therapist  
[fredericmartin64@wanadoo.fr](mailto:fredericmartin64@wanadoo.fr)

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Frédéric MARTIN is Speech – Language Therapist, graduated in the Speech-Language Therapy school of Paris. Former SLP at Hospital Henri Mondor (CRETEIL) 1982/2004

Professor in the schools of Speech-Language Therapy of Paris and Caen. Current position: full time private practice in Paris. His main interests are: facial paralysis, oro facial myofunctional disorders, dysphagia (infants and adults), neurodegenerative diseases. He has written several articles in specialized reviews, one book and 4 chapters in books. He has held numerous of conferences on facial paralysis, dysphagia and orofacial myofunctional disorders (Belgium, Brazil, Canada, France, Italie, Tunisia, USA, Uruguay) and regularly runs workshops in France on dysphagia and facial paralysis. He has produced an online course on the rehabilitation of facial paralysis. He is an active member of the Fédération Nationale de Orthophonistes (FNO) (National Federation of Speech-Language Therapists). Member of the scientific committee of the Syndicat National des ORL (SNORL) (National ENT Federation). Research member of the ATC (Allo – *Transplantation Composite vascularisée*, Face graft reconstruction).



## **Dr. Hazel Roddam**

Reader in Allied Health Practice

School of health Sciences,

University of Central Lancashire (UCLan)

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Dr. Hazel Roddam is a Speech and Language Therapist (SLT) with 25 years of clinical experience prior to joining the Allied Health Professions research unit at University of Central Lancashire in 2006. Her clinical expertise is particularly around working with children and adults who have long term neuro-motor conditions and rehabilitation needs, including motor movement disorders, cognitive impairment and special educational needs, assistive technology, and eating, drinking, swallowing difficulties.

Hazel has conducted research into evidence-based practice (EBP) across a wide range of healthcare professions since 2000, and her work has achieved significant recognition and impact worldwide. Hazel has an extensive record of supporting research capacity building in clinical services: working with individual practitioners and teams to raise their awareness of the research environment, to implement research evidence into practice, to undertake practice-based research and service evaluations, and to disseminate innovative good practice.



**Dr. scient. med. Heike Münch, MSc**

Graz, Austria

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Speech and Language Therapist since 1989

2009 – 2011 Danube University Krems, Austria, Master in Speech and Language Therapy

2012 – 2015 Doctoral School at the Medical University of Graz, Austria

Lecturer at the University of Applied Science, Speech and Language Therapy for

Orofacial functions,

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Voice therapy in practice

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Head of the department Congress Organisation and Research in the Austrian Association of Speech and Language Therapists.

# SWALLOWING AND FEEDING DISORDER IN ADULTS: A PRIMARY ROLE FOR THE SPEECH-LANGUAGE THERAPIST. FRENCH EXPERIENCE

**Frédéric Martin**

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*France*

Individuals with swallowing disorders can complain of many discomforts related to eating like coughing, food remaining in the mouth or throat, food sticking and for some cases, choking and aspiration. Clinicians must be comfortable with the rescue procedures and the different manoeuvres before starting a rehabilitation. They must be able to determine the right food and liquid texture and thickness, proper positioning, mealtime strategies and adaptive equipment that make eating safe. The causes of dysphagia can be damage of the nervous system such as stroke, brain and spinal cord injury, ALS and parkinson's disease, muscular dystrophy, cerebral palsy, Alzheimer disease. They can be structural damage affection of the head and neck including cancers, injury or surgery, denture disorders. Occasionally, swallowing disorders are psychologically based or the cause of an unknown etiology. Speech-Language Therapists play a primary role in the evaluation and treatment of patients with dysphagia. The evaluation is the combination of clinical and instrumental assessments to diagnose the specific type of swallowing problem and select the best treatment. Treatment is different for every patient depending upon the cause and nature of their swallowing disorder.

The aim of this presentation is to describe the different causes of swallowing problems in adults and the consequences on the coordination of the muscles and structures in the mouth, throat, pharynx and esophagus, but also the consequences on supply and quality of life. We will present a french experience for the treatment of dysphagia, through assessments and treatment strategies and show how this rehabilitation takes place in the French health system.

**Keywords:** Dysphagia, nervous system damage, Head and Neck damage, clinical assessment, instrumental assessment, treatment strategies

# PROFESSIONAL ISSUES IN PAEDIATRIC DYSPHAGIA: WHAT ARE THE IMPLICATIONS FOR RESEARCH AND CLINICAL PRACTICE?

**Dr. Hazel Roddam**

*University of Central Lancashire (UCLan), United Kingdom*

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Speech and Language Therapists (SLTs) have a unique and distinctive professional role in the assessment and management of oro-pharyngeal dysphagia with special care babies, infants with cleft palate and other cranio-facial abnormalities, children who have physical disabilities (including Cerebral Palsy) and other developmental learning disabilities including autism. Working with these populations, SLTs play a key role in multi-disciplinary teams with a wide range of other professionals in healthcare as well as with colleagues in education and social care. We also provide essential support for the families, so it is vital that we are able to confidently keep ourselves updated with the most current research evidence for best practice in assessment and management for these cases.

The lecture will present an overview of the most recently published research evidence base, including sign-posting delegates to the most relevant pre-appraised sources such as systematic reviews. Awareness of the key research groups in this field is also important for us to be able to more efficiently keep ourselves updated within our own specialist areas of practice. This synthesis will map out what is known, and where are the key gaps in our current research evidence base: especially the current (im)balance of evidence between diagnosis approaches and intervention approaches. The recent international work for a consensus classification system for describing dysphagia in children with Cerebral Palsy is also highly relevant.

Professional guidance for SLTs, including regulatory standards for additional post-graduate competences and specialist clinical skills training in dysphagia will be discussed; in particular, the new UK Royal College of Speech and Language Therapists (RCSLT) competences framework approach for SLTs to demonstrate their theoretical knowledge and their clinical skills for working in dysphagia. Values-based practice and ethically-based practice will be defined, reinforcing a deeper understanding of evidence-based practice, with illustrative case examples of working with families of children who have dysphagia. The range of challenges and opportunities for implementation of published research findings into real – world practice settings will be considered.

In the year ahead there will be a number of international campaigns to raise public awareness of our distinctive SLT role working in the field of dysphagia. These include the UK “Swallow Awareness” initiative, and of course CPLOL’s European Day on March 6<sup>th</sup> 2017. These campaigns will offer clinical SLTs a range of resources for updating their own knowledge base, as well as generating opportunities for promoting messages about quality of life and social inclusion for the whole family of children with dysphagia.

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# CLINICAL EVALUATION AND INTERVENTION OF OROFACIAL FUNCTIONS

**Dr. scient. med. Heike Münch**

*University of Graz, Austria*

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The orofacial system is one of the most complicated and most important functional system of the human organism.

Sensory perception, like feeling, taste, smell, temperature and pain sensations are located in this region, as well as human needs, for example nutrition. Tongue, oral cavity and teeth are working together as a “biomechanical ensemble”. Form and function cause each other. Interactions take place between tongue function and lip function. Dental position depends on these functions, as well as swallowing, exact articulation, respiration and voice.

The orofacial complex has to be observed as a functional Complex. Dysfunctions within the orofacial complex always cause symptoms in other parts of the body.

The knowledge of these functional connections allows diagnosis and treatment.

Within a clinical study the orofacial functions of 79 persons between 11,9 and 18.9 years had been examined within one year. The study took place at the medical University of Graz. The investigation took the form of a medical history interview and the non-standard assessment OFD\_01. For statistical analysis SPSS, Version 15.0, was used. The level of significance was set at 5%.

The results of this evaluation will be presented at the conference.

**Keywords:** Orofacial dysfunctions, tongue thrust, bruxism, rest posture, lip function, lip force

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# THE COMPARISON OF THE RESULTS OBTAINED IN CLINICAL SWALLOWING EVALUATION AND VIDEOFLUOROSCOPIC EVALUATION IN ADULTS WITH NEUROLOGICAL DISEASE

Mare Laidra, Aaro Nursi, Marika Padrik, Helena Oselin

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*Estonia*

**Objectives.** Estonian speech-language pathologists (SLPs) have limited access to instrumental swallowing evaluation methods, e.g. MBS or FEES. Therefore the SLPs often rely on the results from clinical evaluation and therapy suggestions are given according to the results gained from non-instrumental assessment. The aim of the present study was to find out, what is the degree of resemblance between the results from clinical swallowing evaluation and videofluoroscopic swallowing evaluation in assessing the severity of dysphagia.

Additionally, experts opinions were asked about the scales and manuals used in the present study for clinical and videofluoroscopic swallowing evaluation, in order to find out if the scales and manuals would support clinical and videofluoroscopic evaluation of patients with dysphagia.

**Methods.** Quantitative and qualitative methods were used in order to analyze the collected data.

The clinical and videofluoroscopic findings of 16 adults with neurological disease and dysphagia, were compared. The feedback given by 12 experts about the scales and manuals used in the study was also analyzed.

**Result(s).** The results indicate that the severity of dysphagia and therapy suggestions may differ after clinical and videofluoroscopic swallowing evaluation, especially in patients who suffer from neurodegenerative disease (e.g. ALS) or have problems in the pharyngeal phase of swallowing.

The expert opinions showed that further work needs to be done, in order to increase the validity of the adapted scales.

**Conclusions.** The risk of misdiagnosing the severity of dysphagia and thereby giving inaccurate therapy suggestions rises in patients who suffer from neurodegenerative disease (e.g. ALS) or have problems in the pharyngeal phase of swallowing. In these patients, videofluoroscopic swallowing evaluation is extremely necessary in order to understand the mechanism of the swallowing disorder (e.g. to determine silent aspiration),

to determine the severity of dysphagia and to make objective suggestions about diet and therapy.

The adapted scales and manuals could be useful tools for both beginners and experienced speech-language pathologists.

**Keywords:** dysphagia in adults, clinical evaluation of swallowing, videofluoroscopic evaluation of swallowing, dysphagia therapy.

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## PHONEME PRONUNCIATION TEST: PROGRESS AND DIFFICULTIES

**Dace Markus, Dr. habil. philol.**

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Even in those families in which conversing with children is a daily tradition, language learning difficulties can be noticed. "The lesson is simple: in the process of acquiring and usage of linguistic conventions a lot of skills are involved, and there are many ways to go wrong and a lot of reasons for individual differences" [Tomasello and Bates 2002: 9].

**Tasks** of the paper: To present the principles of creation and usage of the phoneme tests developed in the research project NF/R/2014/053 LAMBA. To emphasize the problem of differentiation between the difficulty of articulation and dialectal influence.

**Methodology.** The phoneme test is based on pictures and on the phonetic system of the Latvian language, The Norwegian experience was used in the creation of it.

**Results.** The created test is intended for testing 3 – 6 years old children without specific speech disorder. The main developed principles: One must be aware of the specific features of the language (the location of a phoneme or clusters in the word, the phonetic environment, the structure of the syllable, prosody phenomena, etc.). One must acknowledge the suitability of the test for the certain age group (two syllable words, do not use compound words, etc.). The pictures must be easily understandable (known realias, clear images, etc.). Participation in testing is voluntary, and the parents agree by signing an agreement to have their child's speech tested. During testing, anonymity of the analysis and storage of the obtained data is observed. Testing should be performed by professional (pedagogical and linguistic) educators, to prevent interference of others in the course of the test. It is stated that in order to make the articulation easier, children use metathesis (in contact and distance), such as *dliēvis`dvielis`*, anticipatory (regressive) distant assimilation - *dlielis`dvielis`*, anticipatory (regressive) contact assimilation in voicing - *zniegs sniegs`*, substitution - *albūzs`arbūzs`*, *zeče`zeķe`*, reduction: total reduction (elision) and partial reduction - *kūze`krūze`*, compensatory lengthening - *gūta`gulta`*, epenthesis - *kāmbļis`knābis`*, combinative methods - *šota`slotā`* etc. It is more difficult for children to pronounce the consonant clusters than separate phonemes. Several differences from the standard pronunciation in children's speech resembled the accent of the High Latvian Dialect, so the children's parents were also surveyed to figure out their

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relationship with the dialect. The cause of the differences found are mostly the articulation of phonemes and the fact that phonological opposition between some phonemes of the Latvian language is not always very strict.

**Conclusions.** The number of the tested phonemes is significantly extended, rationally using the optimum duration of testing. The specificity of the Latvian language, the suitability of the test for the certain age group and the anonymity of the data is observed. Children find the pronunciation of consonant clusters most difficult then the pronunciation of separate phonemes. To make the articulation easier, children use a variety of simplification methods. It is important to identify the causes of differences that could be based on the articulation or on the influence of dialect.

**Keywords:** children, the Latvian language, phonemes, pronunciation test, the impact of the dialect, project LAMBA

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# CLINICAL ASSESSMENT IN SPEECH AND LANGUAGE THERAPY (SLT): A SCIENTIFIC APPROACH

**Jean - Laurent Astier Karanauskas**

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*University Claude Bernard, Lyon, France*

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In medicine, physicians have been working on clinical reasoning for a long time. A first study, led by Elstein (1978), showed that experienced medical doctors were using a common methodology to solve a problem and reach a diagnosis. It is not easy to explain how health professionals take the best decisions for and with their patients. Before providing a treatment, Speech and Language Therapists (SLTs) have to make an assessment and a diagnosis. The methodology used by experienced clinicians relies on hypothetical reasoning, same as medical doctors. There are also some similarities with the methodology used in scientific research.

This presentation will explain in detail the mechanisms behind clinical assessment in SLT. Starting with the first meeting with a patient/client, SLTs try to identify the demand and go through a case history. These pieces of information allow them to make several hypotheses about a potential language/communication disorder. Then, the professional has to make an actual assessment by observing and running different tests in order to confirm or refute some of the hypothesis made. The analysis of the results allows the professional to decide whether further evaluation is needed. These four steps are necessary to achieve a successful assessment.

The aim of a clinical assessment is also to determine the kind of treatment proposed to the patient. In order to provide the best care, it is essential to take ethical reasoning into consideration. Following bioethical principles such as beneficence (eg applying the right interventions), non-maleficence (including negligence), justice (providing the same quality of service to all the patients) and autonomy (giving te right information to help the patient in his/her decisions). F will guarantee a successful SLT intervention. This will insure the patient's full cooperation which is essential for any kind of intervention, particularly in SLT.

**Keywords:** Clinical Assessment, Hypothetical Reasoning, Methodology, Speech and Language Therapy, Ethical Reasoning, Diagnosis

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# TREATMENT OF ARTICULATION DISORDERS IN CHILDREN: MOTOR LEARNING APPROACH

**Daiva Kairiene, PhD**

*The Faculty of Educational Sciences and Social Welfare  
Šiauliai University, Lithuania*

Objective of presentation – to disclose and present the main theoretical principles, approaches and strategies of motor learning applied in treatment of articulation disorders in children.

Few similar, but also different theoretical and practical approaches of motor learning are distinguished in the field of treatment articulation disorders: traditional motor approach (Van Riper, 1939) and non-speech oral motor therapy (Rosenfeld-Johnson, 2001; Marshalla, 2004; Bahr, 2010, etc.). The last mentioned approach is very widely analysed in the field of speech and language therapy, particularly emphasizing the questionable efficiency of this approach on the speech process Bowen, 2005; Lof, 2006; Powell, 2008; Pannbacker, 2008; Mutiah, Georges, et al, 2011).

Even if there is no enough scientific evidence according to efficiency of traditional motor approach in the practice, this approach is recommended to use in treatment of children with articulation disorders, as all strategies (phonetic placement, shaping, progressive approximation, multi-sensory cueing/ integration, syllable / (non-sense) word drills, melodic intonation, core vocabulary, other) are used in the context of the speech process.

Non-speech oral motor therapy approach, which is still often mainly used in the speech and language therapists' practice, is arguable, because of difference in physiology of oral and body movements (Lof, 2006), dynamic aspects of oral motor during the speech process (Bowen, 2005), limitation of theoretical background (Wilson, Green, et al, 2008) and limited research aiming at evaluation of non-speech oral motor therapy, as usually this approach is applied in combination with others (Kamhi, 2006; Powell, 2008; Mutiah, Georges, et al, 2011).

Conclusions arise on the background of theoretical analysis and are related to some suggestions for the practice. Traditional motor learning approach (including phonetical placement strategy) must be used in treatment of articulation disorders in children. Non-speech oral motor therapy should be not used aiming at improvement of children speech,

but can be relevant to the teaching of non – speech oral motor movements (eg. swallowing).

**Keywords:** motor learning approach, children articulation disorders, speech and language therapy

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## VOICE ERGONOMICS RISK FACTORS IN TEACHERS

**Baiba Trinite, PhD, Valda Krauze, Megija Pira, Gundega Šteindale**

*Liepāja University, Latvia*

22

**Objectives.** The prevalence of voice problems in the population of teachers of Latvia is high – 67% of teachers had had problems with the voice during their working career. The aim of the study was to investigate teachers' voice ergonomic factors and determine the acoustic changes of teachers' voices during the workday.

**Methods.** Twenty-three classrooms of one school were observed during the study. Twenty-one teachers (19 females, 2 males) were included in the study. The following survey methods were used in the study: The Voice Ergonomics Assessment in Work Environment checklist, the modified Voice Risk Factors questionnaire, Voice Handicap Index. The voice acoustic assessment in teachers was carried out twice – in the morning before the lessons and in the afternoon after the last lesson.  $F0_{sv}$ ,  $F0_{cs}$ , SPL, Jitt, Shim parameters were extracted from the voice samples. The AVQI before and after the workday was calculated based on the recorded voice samples. The MDVP software (CSL, KayPentax) and programme PRAAT were used for the acoustic analysis.

**Results.** The mean value of simultaneous noise caused by noise sources in the empty classroom was  $LA_{eq1min}$  47 dB (A). The main sources of the noise were computer, data projector, and lamps. The mean value of the noise from outdoors was  $LA_{eq1min}$  52 dB (A). During the routine working period the average level of environmental noise in the classrooms varied from 54 to 85 dB (A), mean  $LA_{eq1min}$  73 dB (A). The high level of reverberation was observed in 90% of classrooms.

Indoor air quality. The mean temperature in the classrooms was 21°C, relative humidity of the air 32%. We observed the presence of dust in 96% of classrooms. Most of the classrooms had chalk blackboards that increased the air dustiness.

Working postures and working practice. 44% of the teachers kept the head in turn posture, 26% turned the body on side, and 26% tensed and rose up shoulders while speaking. 78% of teachers spoke in a loud voice during the lessons and 74% of them considered that voice use is excessive. At the same time more than 90% of teachers thought that they have possibility to decrease voice use, rest voice during the breaks, and use more audio-visual equipment (78%).

Teacher centred approach dominated in schools of Latvia. Lectures, discussions, and questions and answers were the main teaching methods. Teachers preferred to use frontal instructions in their daily work.

Health factors. Three teachers had 2 voice symptoms every day and/or weekly, seven teachers had 1 voice symptom. 86% of teachers have never attended ENT for laryngeal examination. The mean VHI was 13.11 (8.01).

Voice acoustic changes. Although all acoustic parameters changed from the first to the second voice assessment, statistically significant differences were found only for the parameter of fundamental frequency in continuous speech,  $p < 0.001$ . A statistically significant difference between two measurements of AVQI were not found. A statistically significant correlation between afternoon AVQI and number of teaching hours was found  $r = 0.575$ ,  $p < 0.01$ .

### **Conclusions.**

The assessment of voice ergonomics in the working environment identifies problems in classroom acoustics, noise conditions, and indoor air quality. The results of the acoustic voice assessment should be interpreted cautiously due to the small study sample. There is a tendency that F0, SPL, and AVQI change during the workday. Environmental and health factors have impact on voice.

**Keywords:** voice ergonomics, teachers

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# PREVENTION OF READING DISORDERS IN 6 TO 7 YEARS OLD CHILDREN

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The research tasks:

1. Theoretical conclusion research and analysis within the framework of research subject.
2. The research of preventive prerequisites and early literacy skills of the oldest preschool age children within a declaratory research framework.
3. Compilation and analysis of the results obtained.

**Methods.** Theoretical conclusion analysis, structured indirect survey, structured interview, DIBELS Next test, data statistical processing, data comparative analysis, result interpretation.

**Results.** There were 29 children of the oldest preschool age participating in a research from two preschool educational institutions. The institutions were chosen by the principle of randomness. In the PEI Y was used the Montessori method. The early literacy skills were tested twice – in winter and spring. The winter test in PEI Y (n=11) showed generally good results – 90,9% of children had the adequate early literacy skills, but 9,1% of children were in need of an intensive support. In the PEI X (n=18) the winter test result summary showed a lower acquisition level of the early literacy skills – 50% of children had the adequate literacy skills test results, 22,22% of children were in need of a strategic support to improve the early literacy skills, whereas 27,78% were in need of an intensive support. Both research groups of parents and teachers were introduced with the test results and recommendations for a further development of the early literacy. During the second testing in spring, it was stated that 90,9% of children from PEI Y still have an adequate level of the early literacy skills, whereas 9,1% of children show an improvement and further require only a strategic support. In turn in PEI X it was stated that percentage between an adequate early literacy mastering, the necessity for strategic and intensive support has remained constant. The parents' survey (n=29) showed their opinion on a child's general development level and literacy skills, and a family support for a child during the early literacy acquisition.

The summary of survey results stated that parents have diverse views about the family role in providing support during the process of mastering literacy – 48,28% of parents provide their children with support on a regular basis, whereas 41,38% of parents provide the support occasionally, but 10,34% of parents do not provide any support. After comparing the results of DIBELS Next test and parents' questionnaire, it was stated that results coincide – the summarized data show a possible reading disorder risk for one participant from PEI Y and for five participants from PEI X. The DIBELS Next test results testified that the corresponding number of children have the early literacy mastering level under the critical percent of 25 limit, whereas the same number of parents in their questionnaires noted that child's literacy is mastered inadequately.

In the experts' interview it was determined the opinion of research participant groups' teachers (n=2) about the early literacy development possibilities in a preschool institution. The experts pointed out the following prerequisites of literacy: timely diagnostics and correction of language system disorders; an appropriate environment; a supporting family focusing towards cooperation; a child's motivation for mastering literacy; a cooperation between preschool teachers and parents. There are diverse models of preschool education in those PEI in the research involved and also a use of different didactic materials, which could partly affect the research results.

### **Conclusions.**

1. Approximately 50% of children in the age group from three to five years in Latvia have an insufficient speech and language development level. If it is not timely detected, prevented or reduced, then there is a risk of reading acquisition difficulties or disorders in later years.
2. An essential role in the reading disorder prevention play the preventive measures during preschool age – informing and educating the parents and preschool education teachers about the issues of reading acquisition, an environment stimulating the reading acquisition, timely detecting of reading acquisition difficulties, the support providing in case of the early literacy acquisition difficulties, the parents' involvement in a process of a child's literacy acquisition.

The parents' survey results confirm that most part of them support the children's literacy acquisition, and hence during the school years the reading disorder risks are reduced.

**Keywords:** the oldest preschool age children, the early literacy, the prevention of reading disorders.

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# ROLE OF PARENTS IN A CHILDREN'S EARLY SPEECH AND LANGUAGE DEVELOPMENT

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The research tasks:

1. Theoretical conclusion research and analysis within the framework of research subject.
2. The research of children's early speech and language development, and the parents' role in its promotion within a declaratory research framework.
3. Compilation and analysis of the results obtained, conclusion developing.

**Methods.** Theoretical conclusion analysis, structured direct survey, Munich Functional Developmental Diagnostics (second and third year of life), empirical data processing and comparative analysis (SPSS 12,0), data validation analysis (the Shapiro-Wilk test, the Kolmogorov-Smirnov test, the Pearson and Spearman rank correlation analysis).

**Results.** There were 46 children till three years old and their parents participating in a research – 23 children attending a preschool educational institution (group A), and 23 children attending development promoting classes (group B). During the research there were organized individual meetings with children's parents and by using the structured direct questionnaire method obtained the data on a child's health condition and early development process, explored the parents' opinion on activities promoting the early development. By using MFAD method it was carried out an evaluation of children's functional development, the comparative analysis of empirical data and the analysis of the obtained data validity. In the group A the average speech age for children, who has begun to speak about 1 year of age falls behind in point of the average speech age (- 2,8 months), but in the group B the average speech age exceeds MFDD regulations (+ 0,7 m.). Whereas the average speech age for children, who has begun to speak after 1 year of age in point of the average speech age falls behind in both groups – in the group A (- 4,4 m.), in the group B (- 3,8 m.). The deviations in the further speech and language development process are more conspicuous for those in the group A than to the corresponding group B participants. There were ascertained the interconnection of children's general functional and speech and language development in the research – the group A participants had not only the speech and language functioning average indices

lower than the group's average age, but also they were lower than 0,7 – 3,5 of development age stages in the other five functional development areas, whereas the indices of group B participants were 0,2 – 1,4 of development age stages higher.

The parents of group B participants used the opportunities offered by the developing activities in order to promote children's general development and speech and language development.

The group B participants' parents believe the activities promote children development, ensure opportunities for children and parents to socialize, and also the parents acquire the methodology of development promoting activities to perform tasks at home, hence promoting the child's development and ensuring the functional developmental disorder prevention. Whereas the parents of group A participants hold a view that the preschool educational institution ensures enough the development promoting activities for children and the additional activities are not required.

### **Conclusions.**

1. The early speech and language development is a gradual, consecutive and systemic process in the first three years of child's life. It depends on a comprehensive and development promoting environment, the social interaction between parents and children, and also the child's general functional development and his health condition.
2. The parents' comprehension of the significance of developmental activities and active participation in the child's development is an important development promoting factor of the speech and language.
3. The parents' participation in the children's development promoting ensures not only an optimal speech and language development, but also the prevention of functional speech and language disorders.

The educating of society and parents about the speech and language disorder prevention, and its importance in the children's early development stage has to be continued.

**Keywords:** the early speech and language development, the speech and language development promotion, parents, prevention.

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## Poster presentations

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### THE INFLUENCE OF TEACHERS' DYSPHONIC VOICE ON PUPILS' LANGUAGE PERCEPTION

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Voice disorders are more prevalent in teachers' than in the general population. The aim of the study was to determine the impact of teachers' voice disorders on speech perception and comprehension of reading texts by pupils.

**Methods.** The observational research methods were used in the study: Word chain test (Jacobson, 2014), acoustic voice analysis (software Multidimensional Voice Programme, KayPentax 4500; Acoustic Voice Quality Index, AVQI, PRAAT).

The reading texts were recorded in the Speech and Voice Research Laboratory of Liepaja University by the professional male actor who uses the artificial dysphonic voice. The recorded texts were played to pupils during the lesson, in addition to texts read by teachers with normophonic voices. The written questions related with the texts followed the listening task. Pupils were required to give appropriate answers to the both texts.

**Results.** Sixty pupils participated in the study (32 male, 28 female). The pupils mean age was 11 years. The acoustic analysis of teachers' voices showed that teachers have not voice disorders. The acoustic analysis of artificial dysphonic voice showed increased jitter (5.8 %), shimmer (2.2 %), noise-to-harmonic ratio (0.6), voice turbulence index (0.2), AVQI (8.1) parameters. The Word chain test was used with the purpose to exclude pupils with reading disorders from the study. Eight out of 60 pupils were not included in the study due to possible reading disorder. The pupils gave more incorrect answers to the text produced with dysphonic voice than to the text produced with healthy voice. These differences were statistically significant in two cases.

**Conclusion.** Study results confirmed the hypothesis that dysphonic voice has negative impact on speech perception and comprehension of reading texts. The pupils gave more correct answers to the texts produced by healthy voice. The voice quality has impact on

the educational achievements of pupils. Therefore, it is important to inform teachers about prevalence of voice disorder to decrease the number of teachers with dysphonia.

**Keywords:** Voice disorders; dysphonia; pupils' language perception; acoustic measurements.

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# THE ACOUSTIC CHANGES OF VOICE AFTER THYROID SURGERY

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**Objective.** Temporary or permanent changes of voice quality are observed in a significant number of patients after thyroid surgery. The thyroid gland is located anteriorly in the neck and is attached from the superior-medial aspect to the thyroid and cricoid cartilages. The recurrent laryngeal nerve and external branch of the superior laryngeal nerve are located close to the thyroid gland. The laryngeal nerve injuries of different aetiology can lead to voice changes. The purpose of the study was to determine changes of voice acoustic parameters after thyroid surgery in patients without recurrent laryngeal nerve lesion.

**Methods.** Total or hemi-thyroidectomy under general anaesthesia was performed for 13 female patients. Acoustic voice assessment (MDVP, VRP) and calculation of Dysphonia Severity Index (DSI) were conducted at two time points – directly before surgery and 1-2 weeks after surgery. Nonparametric statistic methods were used for data analysis.

**Results.** The mean age of the respondents was 55.5 (9.7) years; 3 smokers; 2 voice professionals. Ten patients had a total thyroidectomy, mean duration of surgery was 150.77 (28.86) minutes, mean pressure of balloon cuff during surgery 22.83 (4.26) mm/Hg, mean size of thyroid 98.09 (99.14) cm<sup>3</sup>. Although all acoustic parameters and duration of maximal phonation time changed from the first to the second assessment, statistically significant differences were only found for maximal frequency ( $p < 0.01$ ), frequency range ( $p < 0.01$ ), and maximal intensity ( $p < 0.05$ ). Statistically significant differences between pre-operative and post-operative measurements of DSI were not found. The mean value of pre-operative VHI was 18.94 (15.82), the mean value of the VHI 3-8 month after the surgery was 13.13 (13.09), no statistically significant differences were found.

The mean value of the baseline DSI was 1.96 (1.87), minimum -2.38, maximum 4.64. The mean 1-2 weeks postoperative DSI after the surgery was 1.60 (2.08), -3.95 – 4.30. The mean DSI after 3 or more months after the surgery was 1.71 (1.76), -1.92 – 4.03.

A strong negative correlation was found between DSI1 and age of respondents ( $r = -0.74$ ,  $p < 0.01$ ). We did not find statistically significant correlations between DSI1 and different factors of anamnesis such profession, smoking, hydration, and stress awareness in daily life. A strong negative correlation was found between the 1-2 weeks post-operative DSI

and mean pressure of a balloon cuff of the endotracheal tube during surgery ( $r=-0.77$ ,  $p<0.01$ ) and age ( $r=-0.63$ ,  $p<0.01$ ). A strong negative correlation was found between DSI3 and mean pressure of a cuff during the surgery ( $r=-0.70$ ,  $p<0.01$ ).

The acoustic analysis revealed that parameters of frequency (minimum F0, maximum F0, F0 range) had statistically significant changes between measurements of three time points.

**Conclusions.** The fact that maximal frequencies and frequency range respectively decreases in post-operative measurements implies that: (1) the lesion of an external branch of superior laryngeal nerve impacts on performance of high pitch sounds; (2) discomfort and slight pain in the region of the neck do not allow the production of sounds of higher intensity and in a higher tone. The study should continue by increasing the group of patients and conducting a third measurement at least three month after surgery.

**Keywords:** Voice acoustic analysis, thyroid surgery

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## MULTIDIMENSIONAL ASSESSMENT APPROACH OF STUTTERING CHILDREN

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This article describes a model and a process that involves a multidimensional assessment approach to the stuttering children. Because of the complexity of stuttering, the amount of information that needs to be considered when assessing stuttering can be overwhelming. In this article, a model is proposed that focuses on five components believed to be central to the maintenance of stuttering. The model includes cognitive, affective, linguistic, motor, and social (CALMS) components, which form a basis for assessment and treatment planning.

*The purpose of this article* is to describe a conceptual, multidimensional model of stuttering that was developed to enhance the collection and interpretation of clinical data associated with the assessment of stuttering.

There have been several models that approach stuttering from a multidimensional perspective: in Zimmermann (1980), published a groundbreaking multidimensional model of stuttering. His model was the first to propose how stuttering could result from a disruption in the coordination of respiratory, phonatory, and articulatory processes for speech. Soon after Zimmermann's model appeared, Wall and Myers (1984) provided a slightly different multidimensional model of stuttering. They proposed that stuttering represents an interaction among psycholinguistic components, psychosocial components and physiological components. Another popular multidimensional model was the demands and capacities model proposed by Starkweather, Gottwald, and Halfond (1990). The basic premise of the demands and capacities model is that the onset and development of stuttering is related to a mismatch between a child's capacities (motor, linguistic, cognitive, and emotional) and self-imposed or externally driven speech demands (time pressure, pragmatic issues, and situational influences). Most recently, models by Smith (1999) and De Nil (1999) have proposed multidimensional perspectives about stuttering, with particular attention being paid to the major contributions of disrupted speech physiological processes as they interact with emotional, social, and learned factors. Smith emphasized in her model that stuttering is a dynamic disorder, in that varying levels of cognitive, linguistic, and emotional processes should have either a direct or an indirect impact on a person's motor speech function. Over the past several decades, there has been general

agreement that stuttering is best understood from a multidimensional perspective (Healey, Trautman, Susca, 2004).

All of the models are logical explanations for how stuttering might develop and/or is maintained, and all provide reasonable accounts for how stuttering develops and is maintained. This contrasts with previous views that stuttering is one-dimensional and could be explained solely as physiological, psychological, linguistic, or learned behaviors that operated independently.

Stuttering is a multidimensional problem which suggests that many factors can contribute to each child's stuttering in different ways, at different times, with different communicative partners. Each child who stutters has a *unique set* of characteristics. No two children are like so an assessment should discover these unique characteristics. One of the basic principles of assessment and evaluation is that each person who stutters is unique and presents a unique profile of thoughts, feelings, reactions, perceptions, and abilities. The level of abilities and performances across the CALMS components is not static. A second basic principle of assessment is that stuttering events are not isolated occurrences but rather fall along a continuum of speech behaviors that are influenced by a variety of factors.

**Keywords:** Multidimensional models of stuttering, multidimensional interventional, stuttering children, assessment.

**Conclusion:**

1. Many stuttering assessment approaches are focused on one issue or aspect of the disorder such as Stuttering Frequency, Speech Rate, Stutter Like disfluencies or speech naturalness. However, documenting the impairment, disability and handicapping aspects of stuttering cannot focus on one dimension. Approach therapy as a dynamic, multidimensional process.
2. There have been several models that approach stuttering from a multidimensional perspective. All of the models are logical explanations for how stuttering might develop and/or is maintained, and all provide reasonable accounts for how stuttering develops and is maintained.
3. Use a multidimensional assessment that includes more than just a measure of stuttering in order to tailor the therapy to the needs of the child. One of the basic principles of assessment and evaluation is that each person who stutters is unique and presents a unique profile of thoughts, feelings, reactions, perceptions, and abilities.

# PHONOLOGICAL DISORDER IN CHILDREN AND EVIDENCE BASED TREATMENT APPROACHES

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**Relevance of presentation.** In Lithuania there is a little scientific literature and research about phonologic disorder: there is not clear definition of phonological disorder, the obvious lack of research works on diagnostic assessment and effective therapy.

**Objectives.** There are two objectives of this presentation. The first objective of presentation is to give a theoretical framework of the concepts of phonological disorder and evidence-based practice. Second objective is to reveal the theoretical evidence based approaches to the treatment of phonological disorders of children's.

**Method.** In order to reveal the meanings of evidence-based practice and phonological disorder as well as treatment approaches of phonological disorder in children, the *analysis of theoretical sources* have been carried out.

**Results.** Speech sound disorders are classified into articulatory (of motor origin) disorders and phonological (of cognitive-linguistic origin) disorders (Gordon-Brannan et al., 2007). In international contexts, phonological disorder is described through deficits of cognitive-linguistic speech sound caused by the following: improper brain activity while organizing the sounds into certain structure as well as disturbed processing of linguistic information (Gillon, 2004; Hegde, 2011); deficits in phonemic (Garšvienė, 1993) and phonological awareness (Bowen, 2009, 2015).

On the ground of analysis of theoretical sources (Roddam, 2016; Spek, 2015; Lemincello, Hess, 2013; Lof, 2011; Justice, 2010; Roddam, Skeat, 2010 etc.), evidence-based practise is a term that has become number one in making clinical decisions. Evidence based practice became an important because of the increasing demand to assess intervention and to prove their efficiency on the ground of scientific research (Ivoškuvienė, Makauskienė, 2012). Speech and language therapists are encouraged to be professionals, whose practical activities are based on the evidence (McCurtin, Roddam, 2012).

At an international level, there is a focus on the topic of intervention / treatment / management of speech sound disorders (Lousada et al., 2013; Peter, 2011; Kamhi, 2006 etc.). The relevance of evidence based practice and speech sound disorders in scientific research has been revealed by Baker et al (2008, 2011). Authors presented a narrative

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review of 134 studies addressing phonological intervention or intervention for children with phonological impairment/delay or disorder from 1979 through 2009. After the analysis of scientific literature, it can be stated that there are a lot of treatment approaches of children's phonological disorder, for example: articulation training, core vocabulary, cycles, empty set, metaphon, maximal oppositions, minimal pairs, phonological awareness therapy etc. Are they based on research evidence? This report presents scientific grounding of these approaches as well as effectiveness of their application in the copying with phonological disorder in children.

**Conclusion.** In foreign research literature, phonological disorder is speech sound disorder of the cognitive-linguistic origin. Phonological disorder includes speech and listening abilities (knowledge of phonology, speech production and speech perception). The analysis of theoretical sources showed that evidence-based practice became more and more important in speech and language therapy. There are more than fifty treatment approaches of phonological disorder in children. But not all of them can be treated as evidence based and effective. Therefore it is necessary to discuss about this topic with SLTs.

**Keywords:** phonological disorder, speech sound disorder, evidence-based practice, intervention, treatment approaches.

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## PROMOTION OF DIALOGUE SPEECH FOR THE CHILDREN AGED 5 – 7 WITH SPEECH AND LANGUAGE DISORDERS

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The speech of a child performs different functions in life. The main function is communicative - speaking role is the main tool of communication. Pre-school age plays a great role in language learning and speech development. A developed language, good communication skills are likely the main key for successful future life. A person builds relationships with other people, adopts into the society, expresses ones thoughts, feelings and emotions by the help of a language. It is a daily necessity for each person to express questions, to be able to listen to another person's point of view and to agree on a jointly acceptable opinion. Following dialogue speech skills of a child, it may be corrected more or at least partly more sufficient.

### **Aims:**

1. to analyze and compare dialogue speech in linguistics knowledge within the framework of pedagogy, speech therapy, psychology, philosophy.
2. to set criteria and indicators for evaluating pre – school children speech.
3. to create and verify pedagogical techniques of promoting dialogue speech for the children with speech and language disorders.
4. to set the main pedagogical conditions for successful development of dialogue speech for the children with speech and language disorders.

**Results.** The child's language and speech develops gradually. The speech might be interfered by various biological and socially inappropriate living factors. Nevertheless the development of the language and speech occurs for each child individually. According to the theoretical basis of the research, in order to assess the level of dialogue speech for the children aged 5 – 7, an organized pedagogical pilot activity was performed and two pedagogical techniques were implemented during the process - Getting to know the content of the image; the games structured by adults and children in order to promote the development of dialogue speech of a child.

The aim of pedagogical pilot action - to examine the pedagogical methods for the children aged 5 – 7 years with speech and language disorders.

The research of pedagogical activity confirms that in order to correct speech and language disorders, several working stages are required, correction of speech therapy occurs successfully when exercises and games are selected according to a particular type of speech and language disorder of a child.

One of the conditions for successful language learning is the example of speech of a teacher and another adults, speech culture, as well as an active, free, consciously planned environment where a child learns to build attitude towards oneself and the world, obtains perceptions and understands the values of environment.

**Conclusions.** There are clear signs of communication and engaging into dialogues on their own initiative for the children with a high level assessment of dialogue speech (on average 4 points).

Children have well-developed speech. They can motivate their opinion, do not interrupt the interlocutor and are able to continue the topic of conversation. They easily change the voice volume and the speed of speech according to the situation.

Children with sufficient assessment of dialogue speech level (on average - 3 points) activity can be observed during initiative replies.

A child does not always continue the topic of conversation, he can change it.

Children with moderate assessment of dialogue speech level (on average - 2 points) rarely show initiative to start up a dialogue. Voice volume, speed of speech are changed, if there is excitement or some emotional experience. Gestures and non – verbal means are used rarely.

Skills of dialogue speech of children have been developed in criteria figures during the process, the highest rated skill is ability to change the volume of the voice, the speed of speech according to the situation and it can be observed among 13 children from 20.

The lowest rated skill is ability not to interrupt the conversation partner, an average level is 5, sufficient – 11, high – 4.

At the end of the study, it was concluded that none of the children involved in the study has a low level of dialogue speech.

**Keywords:** dialogue speech, language, communication, the oldest pre-school age, speech and language disorders.

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# TYPES OF CORRECTION DEVELOPMENTAL INTERVENTION IN 4 YEARS OLD CHILDREN WITH INSUFFICIENT DEVELOPMENTAL OF THE LANGUAGE SYSTEM

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Nowadays we can observe a constantly increasing number of children, especially in the pre-school age, whose level of speech development does not correspond to the development level of this age group. There is a growing number of children with the logopaedic statement IDLS (insufficient development of the language system). This definition is broadly used in Latvia and means that the child has complicated speech disorders that influence the whole language system: phonetics, phonematics, morphology, vocabulary, syntax and connected speech. In order to successfully eliminate these disorders, the speech therapist needs to set up correction developmental intervention.

## **Objectives of the research:**

1. To show the development process of speech for children with IDLS (insufficient development of the language system).
2. To elaborate a corresponding correction developmental intervention plan for children according to the specific developmental features of children.
3. To explore the influence of the chosen correction developmental intervention to the speech development of the child.

**Methods.** The analysis of scientific literature regarding the subject of the research; activities of pedagogical trial with participation of pre-school age children (4 – year – old) from a special pre – school educational institution for children with speech disorders and children from a Standard pre – school educational institution. All children participated in the research have a logopaedic statement IDLS (insufficient development of the language system). In total there are nine 4 year old children from both educational institutions. Work with each child is done individually and in sub-groups of 2-3 children.

The theoretical part of the research includes the characteristics of the child with IDLS (insufficient development of the language system) and the forms of correction developmental intervention that help to eliminate the signs of IDLS (insufficient development of the language system).

The practical part includes the description of the correction developmental intervention for children with IDLS (insufficient development of the language system) (kinesics exercises,

exercises for improving the phonematic hearing, multisensory approach).

**Results.** In the scientific literature there are discussions about the need for early diagnostics of insufficient speech development, methods of investigations and importance of differential diagnosis. This approach helps to set apart the IDLS (insufficient development of the language system) from other disorders. Moreover, the speech therapist is able to optimally organize work with the children who need the logopaedic correction.

The results of the research indicate that a well – planned and elaborated correction developmental intervention has a favorable influence to the development of the child: speech and language development, general development of motor skills, emotional aspects and aspects of will.

**Conclusions.** The correction developmental intervention is necessary in order to eliminate the IDLS (insufficient development of the language system). In the process of elaborating the sets of exercises for the children with IDLS (insufficient development of the language system) the speech therapist needs to consider the personality and character of the child, his abilities and specifics of child's development.

**Keywords:** insufficient developmental of the language system, 4 year old children, correction developmental intervention

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## EARLY LITERACY DEVELOPMENT INDICATORS OF SIX YEAR OLD CHILDREN FROM GENERAL POPULATION IN LATVIA

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### Introduction.

Reading is one of the most important processes which children must master in order to prosper in the modern world. Reading is a language-based skill, and deficits in oral language skills and speech deficits would negatively impact reading achievement. However, poor reading trajectories may be avoided if critical pre skills that are predictive of mature reading can be strengthened during kindergarten. The foundation of an effective approach to prevent reading failure and disability is to target early literacy skills that are predictive of later reading success (Good, R. H., III, Gruba, J., & Kaminski, R. A., (2001).

### The aim of the study.

The aim of this study is to investigate how many children from general population age 73 month – 81 month have a risk for reading difficulties and whether this can already be predicted in kindergarten.

**Materials and methods.** The participants were 224 Latvian speaking children from general population - Ķekava and Mārupe districts, Latvia, age 73 months – 81 months . Each child was assessed on *Dynamic Indicators of Basic Early Literacy Skills* DIBELS Next (Good & Kaminski et al., 2011; adaptation and standardization in Latvia, The DIBELS Next <sup>LV</sup>Latvian version: Raščevska, Vabale, Orlovskā, Grišķēvica, Ozola, Legzdiņš, 2013). We used Benchmark Assessment for kindergarten in the start of the school year, which includes First Sound Fluency (FSF) assessing phonological awareness and Letter Naming Fluency (LNF). DIBELS Next Composite score was calculated as a sum of FSF and LNF.

**Procedure.** The assessment of early literacy skills was done in one 10 to 15 minute long individual session with each participant.

**Results.** Results indicated that 42% (n=224) began with at some risk level on Dibels Next composite score, but 26% of them are on high risk level ( >25th percentile) benchmarks. 46% ( n=107) of kindergarten students was at risk level of letter naming fluency and 25% of them on high risk level (>25 percentile) . Letter naming fluency is most

often a precursor to the more advanced phonological awareness skills of phonemic segmentation and nonsense word fluency. The ability to isolate the first sound in a word is an important phonemic awareness skill that is highly related to reading acquisition and reading achievement. There are also 35% of students who are at risk of first sound naming fluency and 25% (> 25 percentile) of them on high risk level.

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**Conclusion.** Children at risk for reading difficulties can be identified in kindergarten and intervention programs can be provided. Early identification and early intervention can prevent most serious reading difficulties, or at least reduce the severity of them. Speech and language therapists have an important role to play in the identification of children at risk - to recognizing the signs of possible specific reading difficulties.

# THE IMPACT OF REMOVABLE DENTURES ON PATIENTS' PHONETIC ADAPTATION

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**Purpose.** To assess the correspondence of removable dentures design to the intraoral and extra oral anatomical landmarks and define its link to the peculiarities of patients' phonetic adaptation.

**Materials and Methods.** In current study 130 patients were examined: 80 patients with conventional partial (RPD) or complete (CD) dentures and 50 subjects with a natural dentition (the control group). The total numbers of 650 speech video samples were evaluated for both visual and audial alterations in speech production; the analysis was performed according pre – established guidelines. The functional value of 142 removable dentures was assessed in correspondence with the protocol found in literature, which was modified according to the aims of our investigation. Statistical analysis was performed using SPSS 20.0. P value equal to or less than 0.05 was considered to be statistically significant.

**Results.** Removable dentures, designed in respect to intraoral anatomical landmarks was found in 76% (n=61) patients, in 24% (n=19) there was lack of correspondence between artificial teeth and intraoral landmarks. In patients presenting removable dentures, with artificial teeth placed without correspondence to anatomical landmarks, distorted speech was detected 4 (four) times more frequent in patients with partial dentures (p=0.002) and twice more often in patients with complete dentures (p<0.01), when compared to group of patients with artificial teeth placed in correspondence with anatomical landmarks. Alteration in speech quality was noted equally frequent (65% (p=0.59)) in patients with partial or complete removable dentures, with inappropriate functional value, it was three times more often than in group of patients with clinically acceptable functional value. Facial esthetics was distorted in 79% of patients with removable dentures, designed without taking in to consideration the anatomical landmarks, only in 13% of the patients, wearing conventional prosthesis, designed according guidelines (p<0.01).

**Conclusions.** Alterations in facial appearance and distorted speech sound were frequently observed in patients with removable dentures designed without taken into account anatomical landmarks and with reduced functional value. Patients with appropriate functional value of removable dentures and artificial teeth positioned in correspondence with intra oral landmarks generally reported satisfaction with prosthetic rehabilitation. Patients' negative subjective evaluation was mostly connected to reduced functional value of removable dentures. In order to improve patients' phonetic adaptation, regular checkup visits should be planned for all patients with conventional removable dentures.

**Keywords:** denture, speech, phonetics, dental casts, anatomical landmarks, facial esthetics

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## **Workshops**

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### **Workshop I**

#### **CLINICAL EVALUATION AND INTERVENTION OF OROFACIAL FUNCTION**

Heike Münch (Austria), *Moderator: Jolanta Hanzovska*

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### **Workshop II**

#### **THE EVALUATION AND TREATMENT OF SWALLOWING DISORDERS: CAUSE, EVALUATION, DIAGNOSTIC, EXERCISES, ADAPTIVE EATING AIDS, RESCUES PROCEDURES, CASE STUDY**

Frédéric Martin (France), *Moderator: Gunta Ozoliņa*

### **Workshop III**

#### **RESEARCHING FEEDING DIFFICULTIES IN INFANTS AND YOUNG CHILDREN**

Sarah Edney, Hazel Roddam (United Kingdom)

*Moderator: Egija Laganovska*

### **Workshop IV**

#### **PRESENTATION OF NUTRICIA**

Chefs' show

Agata Jędraszczak (Poland), *Moderator: Zeltīte Šneidere*

### **Workshop V**

#### **K-TAPING SPEECH AND LANGUAGE THERAPY**

Roger Ehrenreich (Bivix GmbH, Germany)

### **Workshop VI**

#### **TOBI Eye Tracking**

Sigita Kalniņa (SIA Arbor Medical Korporācija), Magnus Sundelin (Tobii Dynavox, Sweden)