

What is new about Dyslexia and the European Dyslexia Association ?

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Outline

1. What is new about Dyslexia

- ① Dyslexia, a variety of difficulties
- ② DSM 5, the aim of assessments
- ③ Research, the new facts
- ④ A short list of SLD – Dyslexia
difficulties
- ⑤ In Libraries students with SLD may
receive help

2. What is new about EDA, European Dyslexia Association ?

1. What is new about Dyslexia

① Dyslexia, a variety of specific learning difficulties

“One notable aspect of dyslexia that puzzles theorists is the variety of symptoms that are consistently associated” - Franck Ramus

Gavin Reid asks:

- Do we really need to define dyslexia and can we really encapsulate the features and the feelings that accompany dyslexia in a single statement ?
- How important it is to recognize “Individual differences” in persons with dyslexia.
- A spectrum of difficulties : the use of labels can be both restrictive and misleading.

I. What is new about Dyslexia

IFLA
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① Dyslexia, a variety of specific learning difficulties

- Working memory difficulties, information processing, phonological processing
- Literacy difficulties, non-verbal difficulties, visual difficulties, social awareness.

1. What is new about Dyslexia

② DSM 5 the aim of assessments

The new DSM 5 classification - *Diagnostic and Statistical Manual of Mental Disorders* - refers to “**one overarching category of Specific Learning Disability with “specifiers” or specific difficulties impeding learning** which have to be identified at the time of the assessment.

1. What is new about Dyslexia

② The new DSM 5 classification

- The assessment has to find out the appropriate educational help needed by the student to overcome his learning difficulties.
- Assessments have to be repeated to assure the follow up of the developmental changes of the difficulties which occur when students grow up.
- Specific Learning Difficulties are unexpected, the other aspects of development seem fine.
- They are a chronic condition and persist into adulthood.
- SLD are cross cultural.

1. What is new about Dyslexia

③ Research, the new facts

1) New techniques in Neuroanatomy of developmental dyslexia -Genedys Study presented by Franck Ramus

- **The new techniques in Neuroanatomy show brain structures with the cortical thickness and surface which gives the volume, as well as the brain functions. These techniques are impressive.**

1. What is new about Dyslexia

③ Research, the new facts

- **Differences are found in brain structures and brain function when person with dyslexia are compared to normal reader (non dyslexics).**
- The findings are :
 - less grey matter in the left perisylvian language regions.
 - less-well connected white matter in the left arcuate fasciculus connecting language region.
 - differences in functional sequences.
 - It has to be considered that Brain Structure differences lead to brain function differences to cognitive deficit and to reading level !

1. What is new about Dyslexia

③ Research, the new facts

2) Impaired brain representation of phonemes or faulty access to phonemes

- **A Recent Research about the debate : have dyslexics impaired representation of phonemes (individual sound-segments such as g/in girl) – or faulty access to these phonemes “representation”**

1. What is new about Dyslexia

③ Research, the new facts

- This recent research took in account neuro imaging technology.
- The researchers investigated 23 adults severely affected by dyslexia compared to 22 adults without dyslexia.
- **They found that connection between left regions - that are important for processing speech sounds and speech output - was impaired in people with dyslexia**
- **But the observation of brain activation patterns in response to different types of speech sounds in adults with and without dyslexia, didn't show any difference**

1. What is new about Dyslexia

③ Research, the new facts

- Boets and colleagues used functional MRI (fMRI) to assess brain activation patterns during phoneme processing and combined it with diffusion tensor imaging (DTI) to assess white matter structures required to access this representation.

1. What is new about Dyslexia

③ Research, the new facts

3) Genetic factors

- The “dyslexia susceptibility” gene **DYX1C1** is involved in **neural migration** and that the deletion found in a dyslexic family disrupt its function
- Genetically driven cortical abnormalities due to anomalies of **cell migration** : **ectopias** and **focal microgyri** taking place in specific areas of the left perisylvian cortex involved in phonological representation and processing, are the primary cause of dyslexia.

1. What is new about Dyslexia

③ Research, the new facts

○ Ectopias consist of 50-100 neurons and glia, that in the course of neural migration, have missed their target in the cortex and have escaped into the molecular layer through a breach in the external glial limiting membrane, accompanied by mild disorganization of the subjacent cortical layers.

○ Focal microgyri are more severe disturbances, the organization of all layers of the cortex being affected.

➤ Several gene linked to dyslexia are playing a role in the cerebral cell migration.

1. What is new about Dyslexia

③ Research, the new facts

➤ **Heterogeneity within dyslexia**

“ The proposed model assumes that focal cortical abnormalities disrupt the development of the particular cognitive function(s) that would normally recruit those areas. There is not one single area assumed to be involved in phonological processing that would be disrupted in dyslexia”

1. What is new about Dyslexia

③ Research, the new facts

➤ The phonological deficit of dyslexia is usually described as having three components.

① Poor phonological awareness

② Slow lexical retrieval – evidenced in rapid serial naming tasks

③ Poor verbal short-term memory – as tested by digit span or non word repetition

1. What is new about Dyslexia

③ Research, the new facts

- Each of these phonological skills in turn involves a whole network of cortical areas.
- This suggests that there might be several ways to become dyslexic depending on which subset of the phonological skills network is affected; From these premises, one might expect focal cortical abnormalities outside the phonological network explaining cooccurrent neurodevelopmental disorders or SLD co morbidity.

E.g. ectopias

1. What is new about Dyslexia

③ Research, the new facts

- The aim of these explanations is that you have to remember that the persons with dyslexic or SLD arriving in a class or in your Library have different kind of difficulties and to consider and find out which kind of difficulties the student in front of you has.
- The best would be if he could be aware of his difficulties and could explain them to his teacher or to you.

1. What is new about Dyslexia

④ A short list of SLD-dyslexia difficulties

Specific Learning Disability is

a language-based-neurodevelopmental disorder
that impedes the ability to learn or use specific
academic skills.

1. What is new about Dyslexia

④ A short list of SLD-dyslexia difficulties

Its primary symptoms are:

- inaccurate phonological processing, poor auditory discrimination and poor grasp of speech sound within the word,
- phonological awareness and morphological awareness deficit;
- difficulties in decoding , and slow printed word recognition,
- in turn reading fluency and reading comprehension are affected,
- spelling is poor,
- poor written expression,
- poor verbal working memory, with inaccurate representation of words in long term memory, difficulties to access to LTM,
- difficulties in automating skills,
- sensory difficulties in the visual, auditory and tactile domains, problem with balance and motor control.
- emotional factors that give rise to lack of confidence, low self-esteem,
- anxiety and stress

1. What is new about Dyslexia

④ A short list of Sld-dyslexia difficulties

- **SLD exist on a continuum, from mild to severe, each person has his difficulties which can change with time**
- **Early signs of SLD may occur in the preschool years such as:**
 - oral language difficulties,
 - rapid naming,
 - difficulty learning names of the letters,
 - difficulties in counting objects, (nursery rimes counting)
- **But SLD can only be diagnosed reliably after starting formal education.**

1. What is new about Dyslexia

④ A short list of SLD-dyslexia difficulties

- **Adults with dyslexia** may read slowly, as they have to fully engage their cognitive resources. Even if their reading has improved, difficulties in spelling and in written expression may remain.
- I have to mention that we have the benefit of well known writers with dyslexia

1. What is new about Dyslexia

④ A short list of SID-dyslexia difficulties

- **Co-morbid or co-occurrence with other neurodevelopmental disorders is frequently observed.**
 - **Specific Language Impairment : dysphasia** : expressive or receptive difficulties, these last can be ignored.
 - **Dyscalculia** : difficulties in arithmetic
 - **Dyspraxia : Developmental Coordination Disorder essentially motor coordination difficulties:**
 - Affecting fine motor skills such as pencil grip leading to **dysgraphia**,
 - Gross motor activities such as movement and balance,
 - Visual-motor and spatial difficulties.
 - **Attention deficit disorder associated or not to hyperactivity ADHD**
 - **Executive function deficit** for supervisory attention in working memory (difficulties in planning, working memory)

1. What is new about Dyslexia

④ A short list of Sld-dyslexia difficulties

- Each SLD can be seen within a continuum from mild to severe.
- Each Student with SLD has divergent and changing manifestations of his learning difficulties and needs **adapted help**. Intervention is based upon formal testing.

The clinician **will specify which aspects of reading are impaired**. For example : Word reading, reading rate, reading comprehension

- Remedial help can be given in the field of the specific difficulties to improve learning or by giving access to **compensation facilities as ICT**.

1. What is new about Dyslexia

- ⑤ In Libraries students with SLD should receive help

Without guidance, the task for dyslexics or SLD students in Libraries can be challenging . But if he feels understood, it will immediately be easier for him. For persons with SLD -Dyslexia Importance of the page sitting lay out

1. What is new about Dyslexia

⑤ In Libraries student s with SLD
should receive help

➤ 1) Books to inform people with dyslexia about dyslexia – SLD difficulties

Dyslexic persons – pupils are mostly aware that they are learning in a different way, having difficulties that their classmates don't have, that makes them feel anxious “disabled” something is wrong but they don't understand what and why. They are unhappy, low-self esteem, desperate, some children suicide.

1. What is new about Dyslexia

⑤ In Libraries students with SLD should receive help

- A book to explain them what kind of difficulties they may have and that they have to discover and develop their strengths and gifts is of huge importance.
- Such a book will also lead them to metacognition : how they learn best ? are they aware which kind of difficulties they have, how they can avoid them ?
- If they know enough about their difficulties and their strength they will be able to develop self-advocacy “Self-advocacy is built on a foundation of enquiry and self-identification of students right and needs” Gavin Reid”
- Many persons with dyslexia acquire a good reading level - perhaps a bit slow – they like to read, but **the quality of the text print is important**, not too small letters, page-sitting must be clear. They will choose a book not only for the interest of information, but also if the page sitting seems convenient.

1. What is new about Dyslexia

⑤ In Libraries students with SLD should receive help

- **Use of the ICT** to facilitate reading: text to speech, or scanning a text to maximize the height of the print, or speech to text avoid writing.
- Audio books, pencil grip : Life scribe pen
- Importance of the use of books found at the school library or even better at the class library.

1. What is new about Dyslexia

⑤ In Libraries student s with SLD
should receive help

2) Books to inform parents

“The role parents can play in helping their child deal with the difficulties associated with dyslexia is of far reaching importance. Parents are the first “port of call” particularly in the kindergarten and the early years. Communication at this level has the potential to minimize anxieties and maximize the skills of parents and teachers, as well as assisting in the identification of the difficulties associated with dyslexia. It is important to consider how parents may help at home. One key aspects is communication, and particularly communication with the school.”

-Gavin Reid (Dyslexia Practitioner's Handbook)

1. What is new about Dyslexia

⑤ In Libraries students with SLD should receive help

3) Books for professionals

➤ The important need to inform about dyslexia for professionals, teachers educational psychologists

【The conclusion】

An important amount of books is needed, not only to explain and to better understand these learning disabilities, but also to improve the help given to students with dyslexia.

<http://www.interdys.org/newscientificevidence.htm>

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