

# “DIFFERENCES IN READING BETWEEN GREEK DYSLEXIC AND NON-DYSLEXIC UNIVERSITY STUDENTS”

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## INTRODUCTION

Dyslexia is the most common among specific learning disabilities and is a lifelong condition, characterised by severe difficulties in reading and frequently in spelling. Until recently, the vast majority of dyslexia research focused on the phonologically inconsistent English language and on young populations. However, both in consistent and inconsistent languages the young dyslexics are significantly slower and inaccurate in reading than their controls. Few studies until now have investigated the reading performance of adult dyslexics in English (phonologically inconsistent language) and even fewer in other languages, while none in the Greek language (phonologically consistent).

## AIM

The aim of the study was to answer the question: what symptoms-difficulties remain in academically successful adult dyslexics. We investigated the differences in reading performance between Greek dyslexic University students and their age and educationally matched controls in terms of:

- Reading speed
- Reading comprehension
- Reading accuracy

## HYPOTHESES

- Are there significant differences in reading speed, accuracy and comprehension between dyslexic and non-dyslexic University students?
- Are there significant differences in reading speed, accuracy and comprehension of both groups between aloud and silent reading conditions?
- Are the reading parameters of both groups affected by text difficulty?
- Is it possible to accurately discriminate dyslexics and controls based on specific reading parameters?

## METHODOLOGY

Participants N = 54

2 groups took part in the research:

- 1) **26 Dyslexic university students:** mean age 22.1 years.
- 2) **28 non-Dyslexic university students:** mean age 22.0

Groups were matched for age, sex and socio-educational level. All dyslexic participants had a formal diagnosis of dyslexia. All ethical procedures were faithfully followed.

## MATERIALS

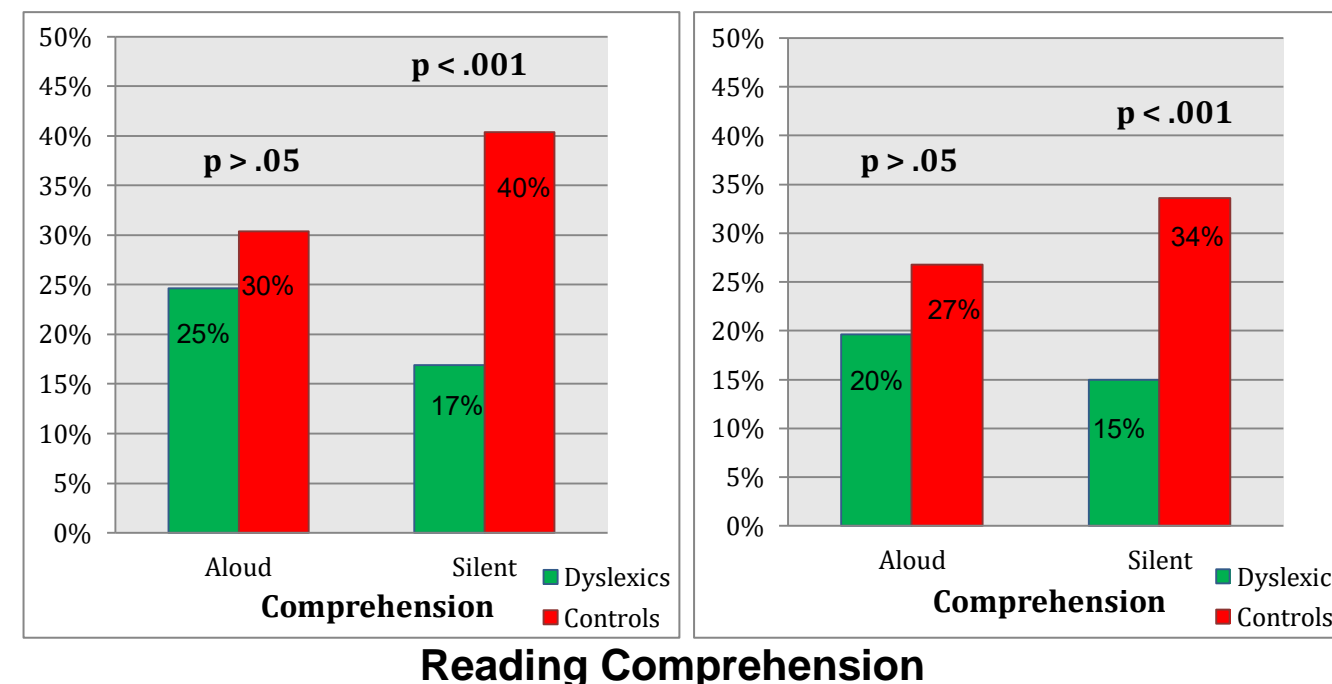
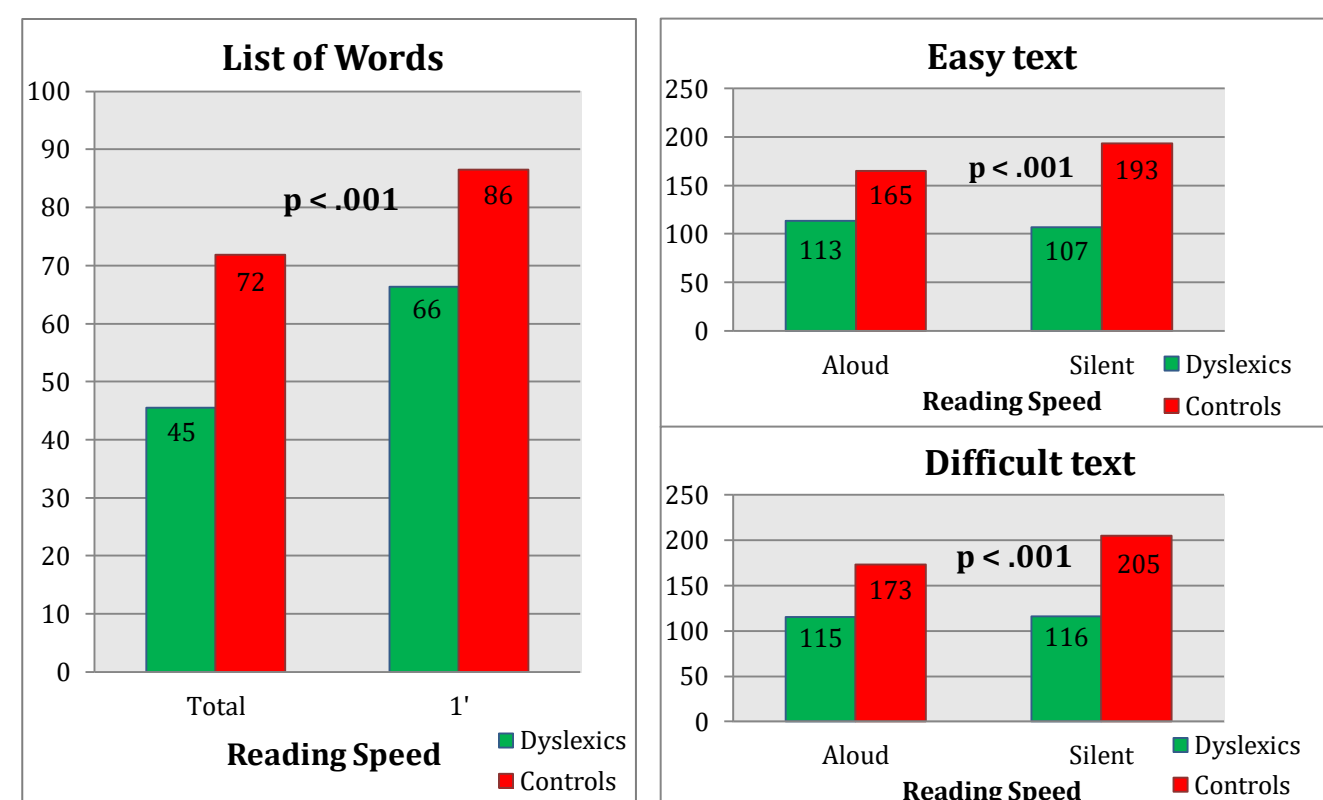
- 2 reading texts of varying difficulty
- A list of words of raising difficulty
- “Reading Errors Analysis Instrument” developed by Prof. Pavlidis (13 categories of reading errors)
- Tape-recorder, for further analysis of the reading errors
- Chronometer, for reading speed evaluation

## EXPERIMENTAL PROCEDURE

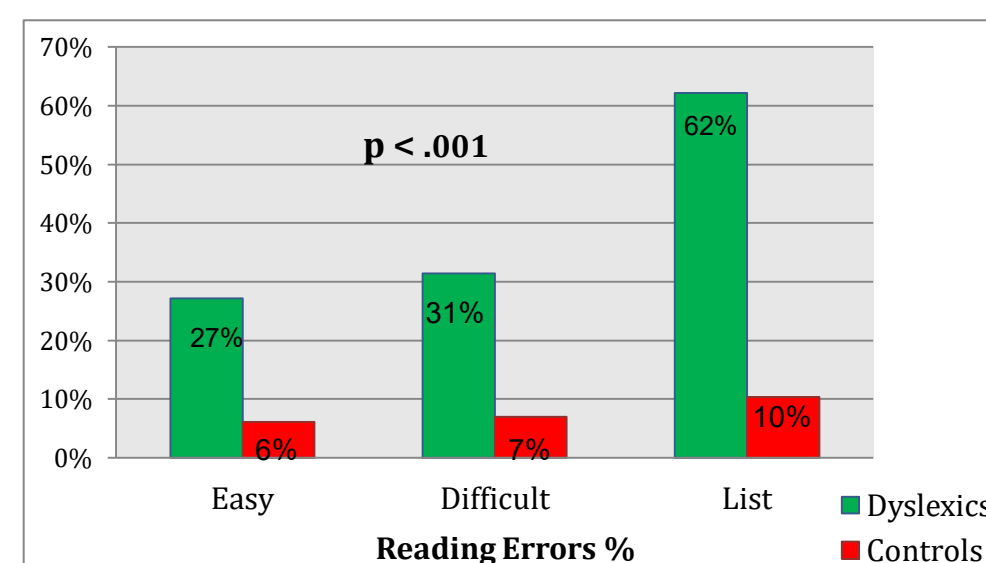
All participants were individually evaluated in reading. They read the reading materials both aloud and silently. They answered reading comprehension questions for each piece of text. Reading materials were administered in a counter balanced fashion in order to neutralise the possible order effect. Total testing time was approximately 20-25 minutes.

## A) Between Groups

### Reading speed

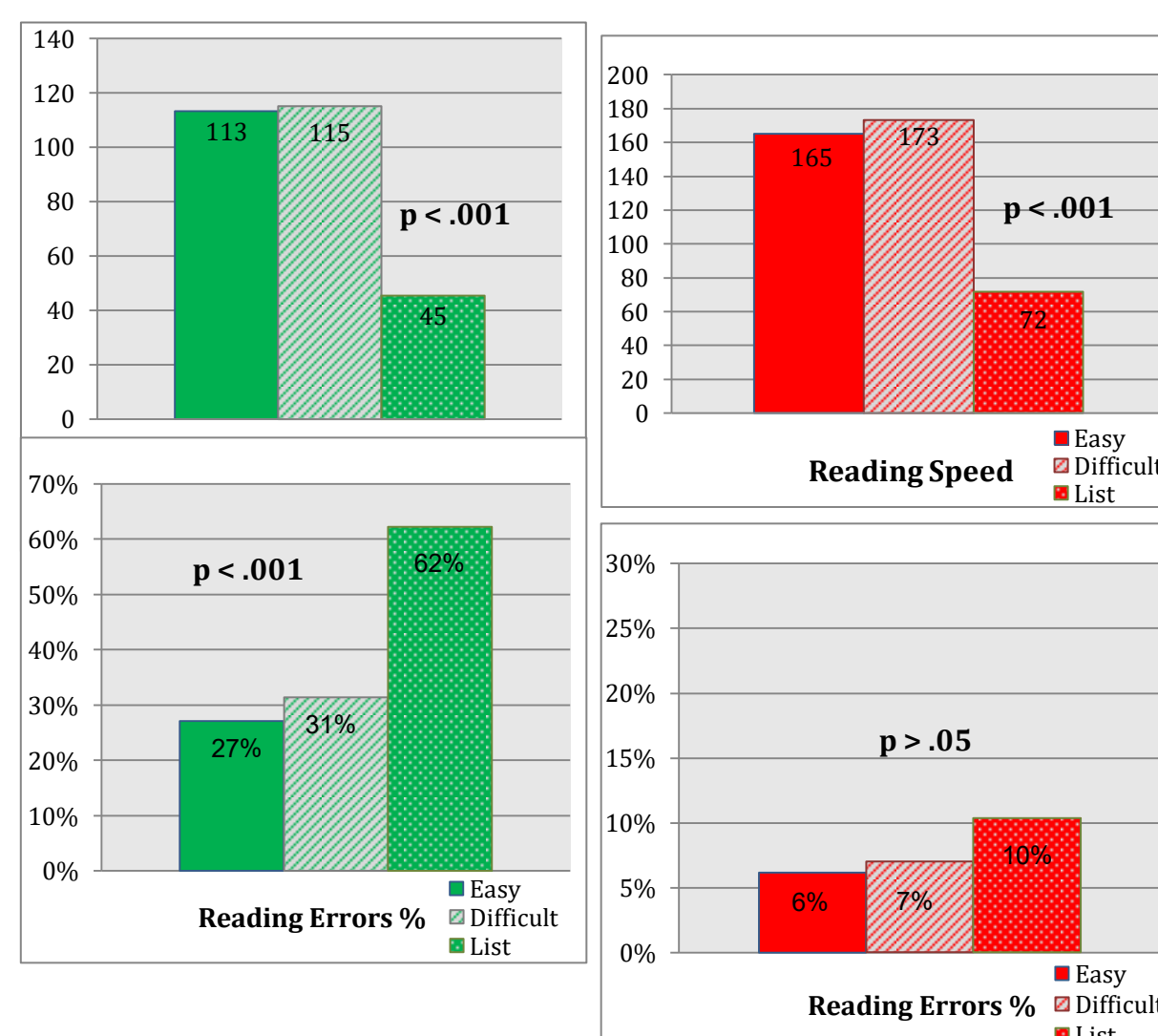


### Reading Comprehension



### Reading Accuracy

## B) Within Groups



## MAIN FINDINGS

### A) Between Groups

- **Speed:** Dyslexic students read significantly slower than their controls in all reading materials ( $p < .001$ ).
- **Comprehension:** Dyslexics showed significantly lower level of comprehension only in the silent reading condition ( $p < .001$ ).
- **Accuracy:** Dyslexics made significantly more reading errors than their controls in all reading tests ( $p < .001$ ).

### B) Within Groups: Between Aloud & Silent Reading

- **Speed: Different pattern**

Dyslexics read at almost the same speed in both aloud and silent reading conditions ( $p > .05$ ), while non-dyslexics read significantly faster in the silent condition ( $p < .001$ ).

- **Comprehension: Opposite pattern**

Dyslexics comprehended better in the aloud condition in contrast to non-dyslexics who tended to comprehend better in the silent condition, even though not significantly ( $p > .05$ ).

### Within Groups: Among Reading Materials

- **Speed:** Both groups read significantly slower in the list of words ( $p < .001$ ).
- **Accuracy:** Dyslexics made significantly more reading errors in the word list ( $p < .001$ ) in contrast to the control group ( $p > .05$ ).

## Logistic Regression Analysis

Dyslexic university students could be almost perfectly differentiated from non-dyslexics based on a single variable, **reading speed** (accuracy level **98.1%**). The model correctly classified 100% of dyslexics and misclassified only one non-dyslexic. Reading speed could almost perfectly predict group membership. Reading speed combined with timing errors (repetition errors) could perfectly differentiate between the two groups (100%). On the contrary, accuracy errors (e.g. substitutions, omissions, etc.) differentiated between dyslexics and controls with an accuracy of 88.9%.

## CONCLUSIONS

- Dyslexics are significantly slower than matched non-dyslexics in reading speed and accuracy, throughout life.
- Dyslexics do not have main comprehension difficulties.
- Dyslexics have major difficulties in word recognition that is why they highly rely on context for accurate reading.
- Dyslexics are similarly slower both in aloud and silent reading, unlike their controls who are significantly faster in silent reading.
- Results are in line with findings of other phonologically consistent languages, such as Finnish, Italian or German.
- Results are helpful for the accurate diagnosis of adult dyslexics based on reading speed.
- Reading speed-fluency is the most reliable diagnostic criterion of dyslexia, irrespective of age or language. Thus, dyslexia diagnosis must rely on reading speed-fluency, at any age.
- Results may be useful for the development of effective treatment methods for dyslexic university students.

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