

FITS – Functional Interactive Timing System (Poster)

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Abstract

FITS is an intervention method and a metronome software program to diagnose and treat students with (LD) Learning Disabilities in: Dyslexia, Dysgraphia, Dyscalculia, ADD, and ADHD. The principle and rationale of the start-up are based on the latest and the up-to-date studies of brain research. It is an innovative method and system covered by a pending patent in the: USA, PCT and ISRAEL. FITS is funded by the Israeli Chief of Science.

Rational

Efficient academic learning skills are:

Based on the "Schema Theory of Motor Learning and Performance" (Schmidt & Wrisberg, 2004).

1. Based on a neuromotor **synchronization** and exercising the 4 senses: balance, movement, hearing, seeing.
2. Depend on skills of motor timing reaction, and automatic rhythmic movement patterns (i.e., writing).
3. Not innate qualifications.
4. Acquired by exercising sequences of motor timing patterns reaction.

According to FITS

- a. **Attentiveness**, Concentration, motor timing reaction, eyes focus & scanning, functioning of the palms and fingers, are the most crucial factors which contribute to acquiring proper academic learning skills.
- b. **Attentiveness concentration and focus**: Are the abilities to filter auditory and visual stimulations, and to focus on only one stimulant (receptivity in hearing, seeing, balance).
- c. **Motor timing reaction**: Is the ability to simultaneously and accurately combine a few rhythmic motor systems such as: copying from the board, reading aloud, writing, etc...
- d. **Thinking, information processing**: Are the abilities of the brain to quickly and efficiently process information and decision.
- e. **Reading and Mathematics**: Are dependant on the ability of the eye muscles to scan and focus on the writing, receptivity of shapes, spatial orientation and 3 dimensions.
- f. **Writing and hand skills**, such as dismantling and assembling, are execution skills dependant on hearing and eye focus and in normal function of speed by hands, palms, and fingers.
- g. **Rhythmical Reading** – Is reading aloud with the **metronome**.

FITS diagnosis Method

1. **Motor timing reaction diagnosis**. Is an accurate, measurable, of the performances of 15 different Locomotor rhythmic skills such as: Balance, Gross Motor, Fine Motor, Ear- Eye-Hand, Grapho- Motor shapes, A B C...Writing, Copying, Reading Aloud. It is done by the computerised **metronome box**.
2. **Scoring** – In Milliseconds.

3. **Three Dominant Profiles** (sidedness) **diagnosis:**

A combination of these characteristics create a picture of: seating place within the classroom , attentiveness etc...

- a. **Ears** – Audio input. Attentiveness, Concentrating, timing ,listening.
- b. **Eyes** - Visual input. Focus, writing & reading.
- c. **Hands** – Execution output. Writing & hands skills.

FITS Intervention Method

Is based on excercising the above 15 motor skills, in different levels. Each exercise is done with and without the **metronome**

Designated to:

Personal intervention = 1 student : **Group** intervention = 4 - 5 students.

Total Period of intervention = 20-24 sessions, 2 – 3 times a week = 2 – 3 months.

Time per Meeting =1 hours(50 minutes) .

Keywords: Brain clocks-dyslexia/dysgraphia, gross/ fine motor timing reaction, auditory motor timing, handwriting timing, eyes movement/tracking dyslexia.

Acknowledgement

The **FITS** project was conducted successfully between 2002-2005 with three groups of 16 students in: "Herzelia" Gymnasium and "Alliance" schools.

References

Schmidt, R. A., & Wrisberg, C. A. (2004). *Motor learning and performance: A problem-based learning approach, 3rd edition*. Champaign, IL: Human Kinetics Press.