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## Introduction

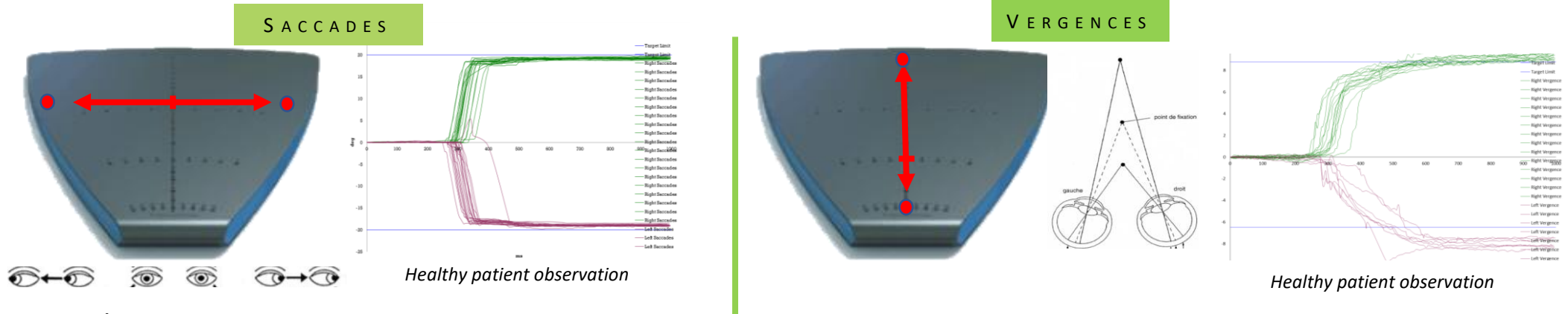
The main symptoms of ADHD are difficulties of regulating attention, behavior and impulses. ADHD is a common pathology with 3 to 12% of children and 1 to 6% of adults, with a sex ratio of 4 males for 1 female. The consequences for learning, social and family life are significant. The medication is indicated if the disorders lead to significant dysfunction and if all non-drug measures (psychotherapy, coaching, school planning, etc.) are inefficient.

Oculomotor disorders are known to be related to the dispersion of the gaze in the environment. Few works have been interested in capability of vergences and saccades in ADHD

This work aims at studying the impact of methylphenidate on those both eye movements for ADHD children.

## Method

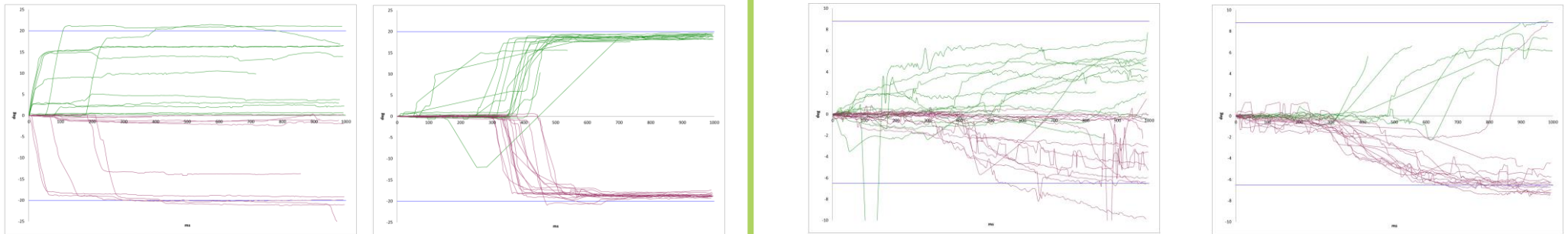
15 children ( from 6 to 10 years-old) diagnosed with ADHD by a multidisciplinary assessment, and, meeting the criteria of DSM-5, benefited from an ocular exploration of vergences and saccades with the REMOBI® system (neuro-visual diagnostic and rehabilitation system), before medication and during the first month of medication.



## ADHD Results

Methylphenidate was clinically effective in all children (except one) in terms of attention, impulsivity and hyperkinetic parameters.

During the first month of treatment, both in exploring vergences and saccades, we were able to observe in 14 patients amongst 15 a significant oculomotor improvement in fixations, latencies and the number of erroneous or anticipated responses while the drug titration was not yet optimized. Only the child who did not improve clinically did not improve either in his eye tracker tests.



Saccades for a 10 years-old boy without (left Figure) and with methylphenidate (right one)

Vergences for a 10 years-old boy without (left Figure) and with methylphenidate (right one)

## Discussion and Conclusion

This study indicates the oculomotor fragility ascribable to ADHD but also highlights the corrective, early efficacy of methylphenidate. The improvement is so significant that it reinforces the adherence of patients, relatives and educators to medication during the trial phase. This is why we systematize this protocol to all new patients when initiating treatment. Oculomotricity is an objective and early marker of the effectiveness of methylphenidate treatment in ADHD.

