

DYSOLVE®

PILOT STUDIES

FIRST DYSOLVE® PILOT

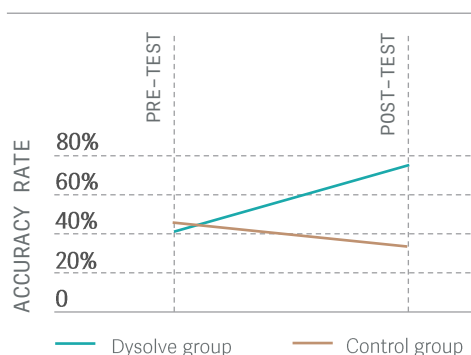
RANDOMIZED CONTROLLED TRIAL

The first Dysolve pilot took place in an afterschool program at a junior high school in New York state in 2014 for twenty-six 6th and 7th graders. Pre-test, participants were at Level 1 or 2 on the New York State's English Language Arts (ELA) assessment (Level 3 = Meets Proficiency Standard; Level 1 = Well Below Proficiency).

In this randomized controlled trial (RCT), controls received the Orton-Gillingham-based Wilson Reading System® taught by an experienced school teacher with Wilson Level 1 certification. Orton Gillingham is the methodology promoted by dyslexia advocates including the International Dyslexia Association, formerly the Orton Society. It is the most widely used approach in schools.

The study design followed the recommended criteria of the Institute of Education Sciences (2013) and the National Reading Panel (2000) for efficacy research, as well as recommended guidelines for fidelity of implementation, procedural reliability, and inter-rater reliability. The study was approved by a university Institutional Review Board and the district's school board.

Comparison of segmentation results

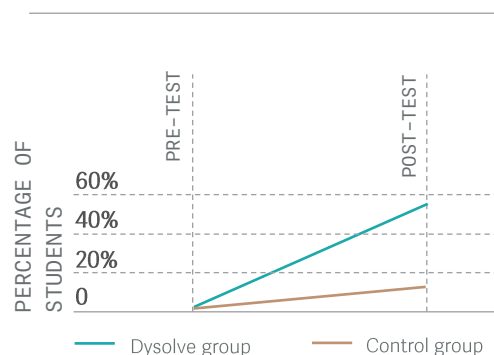


RESULTS

Trial duration was 3 months. Participants were assessed on word segmentation and single-word reading. Segmentation involves breaking up a word into single sounds, a prerequisite for spelling. Reading research finds that word reading is a strong predictor of risk for dyslexia.

The Dysolve group advanced from below 50% accuracy in word segmentation pre-test to 76% on average posttest. Effect was statistically significant. $F(1, 12) = 15.11, p = .002, \eta^2 = .557$. The control group's scores declined slightly posttest. In single-word reading, 56% of the Dysolve group scored above 50% accuracy at 200 wpm (words per minute), compared to 11% of controls.

Percentage of students who scored above 50% in single-word reading at 200 wpm



STATISTICAL SIGNIFICANCE

A series of chi-squared tests revealed no significant differences between the Dysolve and Control Groups in terms of gender, minority status, participation in speech/language therapy, grade level, and two-/single-parent household.

A series of analyses of covariance (ANCOVAs) were run to examine the effect of the intervention on segmentation skill. Both ELA and segmentation pre-test scores were entered as covariates. Table 1 shows unadjusted and adjusted means for these analyses. The ANCOVA for the segmentation test revealed a significant effect of the intervention, $F(1, 12) = 15.11, p = .002, \eta^2 = .557$, with students in the Dysolve Group performing better (see Table 2). This transfer effect was important, considering that training was only for 3 months.

TABLE 1. DESCRIPTIVE STATISTICS OF UNADJUSTED AND ADJUSTED MEANS OF SEGMENTATION POST-TEST BY GROUP

UNADJUSTED MEANS			
Group	Mean	Std. Deviation	N
Control	23.2857	10.67262	7
Dysolve	45.3333	7.08872	9
Total	35.6875	14.14081	16

ADJUSTED MEANS			
Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
23.667 ^a	3.766	15.461	31.873
45.037 ^a	3.226	38.008	52.065

a. Covariates appearing in the model are evaluated at the following values:

ELA Grade 4 score = 626.88, segmentation pre-test score = 26.2500.

TABLE 2. SEGMENTATION POST-TEST: TESTS OF BETWEEN-SUBJECTS EFFECTS

Source	Type III Sum of Squares	df	Mean Square
Corrected Model	2112.652 ^b	3	704.217
Intercept	.778	1	.778
ELA Grade 4	17.658	1	17.658
Segmentation Pre-test	165.954	1	165.954
Group	1116.269	1	1116.269
Error	886.785	12	73.899
Total	23377.000	16	
Corrected Total	2999.438	15	

f	Sig.	Partial Eta Squared	Observed Power ^c
9.529	.002	.704	.977
.011	.920	.001	.051
.239	.634	.020	.074
2.246	.160	.158	.281
15.105	.002	.557	.945

b. R Squared=.704 (Adjusted R Squared=.630)

c. Computed using alpha = .05

5-YEAR FOLLOWUP

5 years later, 6 out of 12 Dysolve users who were Well Below reading proficiency pre-test had attained Honors and High Honors in high school. Only 1 out of 11 controls attained Honors. To qualify for Honors, students had to maintain all subject grades at 85+. For High Honors, they had to be 90+.

OTHER DYSOLVE® PILOTS

Data from Dysolve users across demographics and settings from 2017-2022 showed similar growth trends when they engaged with fidelity. This included homeschooling groups in New York and Pennsylvania. During the COVID-19 pandemic, Dysolve users in a virtual academy in Arizona saw improvements in learning, reading and/or math within 4 months.

DYSOLVE® BETA USERS

Similar growth trends occurred with Dysolve beta users between 2017-2020. Dysolve AI succeeded in getting struggling readers to the 50th percentile in state and standardized reading assessments in 1.5 years on average. Beta users were primarily in late elementary and middle school, scoring below the 25th percentile pre-Dysolve. Again, for those who completed their Dysolve programs, they attained Honors or grades in the 90s in high school.

Some of these early cases were described in detail in the book *Dyslexia Dissolved: Successful Cases of Learning Disabilities, ADHD and Language Disorders*.

Dysolve is the first corrective intervention for reading disability that relies fully on AI, without any human instruction. Other interventions are compensatory, to help students cope with the difficulty throughout school.