

# Tests of Dyslexia (TOD™)

## Remote and Digital Equivalency Studies

### TOD-C Remote Administration

During data collection, 19 TOD-C cases were collected remotely via the Internet and were included in the normative sample. This process involved mailing a Response Booklet to the participant in advance and enlisting the help of a parent or other adult in facilitating the assessment process. To gather more data on the equivalency of method (in-person vs. remote), an additional 12 remote administrations were conducted following the completion of data collection. These two samples were combined to yield a group of 31 individuals. This sample ranged in age from 6 to 33 years and was 32% male and 68% female. Six percent of the individuals came from families who did not attend any college. The sample was 26% Hispanic, 13% Black, 35% White, 16% Asian, and 10% Other/Multiracial. Effect size results from mean-difference comparisons ranged from 0.05 to 0.77, with a median of 0.32. The largest effect sizes were observed on tests of phonological awareness, which is not unexpected given that hearing nuanced differences in sounds is more difficult via the Internet than in person. However, the mean differences are not so large as to invalidate the remote use of such tests, but rather indicate the need for careful consideration of phonological awareness test scores. Aside from phonological awareness, there were no systematic differences indicating that scores were higher or lower based on method of administration. As a whole, the results indicate that remote administration is a valid method for use of the TOD.

### TOD-S Digital Administration

The TOD-S was standardized using a print (paper and pencil) administration; however, a sample of 368 individuals took the TOD-S digitally on a computer as well. This sample ranged in age from 5 to 77 years and was 43% male and 57% female. Twenty-five percent of the individuals came from families who did not attend any college. The sample was 16% Hispanic, 6% Asian, 22% Black, 47% White, and 9% Other/Multiracial.

The study was counterbalanced so that half of the participants were administered the TOD-S on paper first and half on computer first. The two versions were administered one immediately after the other. Effect size results from mean-difference comparisons for the four TOD-S tests ranged from 0.00 to 0.06, all small. These results support the use of norms from the print-based administration for the digitally administered TOD-S and confirm that the TOD-S can be validly administered digitally as well.

An additional study was conducted evaluating digital administration of the TOD-S via tablet rather than computer. The sample of 40 individuals ranged in age from 6 to 76 years ( $M = 36$  years) and was 43% male and 57% female. Fifteen percent of the individuals came from families who did not attend any college. The sample was 20% Hispanic, 8% Black, 50% White, 12% Asian, and 10% Other/Multiracial. Thirty-eight of the participants in this study were Grade 2 or above and therefore were administered Question Reading Fluency (QRF). Although there is not enough data to specifically evaluate Word Reading Fluency (WRF), it is similar to QRF in skill and method and thus results of the QRF findings can be applied to the WRF as well. Effect size results from mean-difference comparisons of Picture Vocabulary (PV) and Letter and Word Choice (LWC) were 0.08 and 0.12, respectively, indicating a small and negligible difference. Effect size results from mean-difference comparisons of QRF reveal a moderate effect size (0.41), with the individuals taking TOD-S on the tablet scoring higher than the matched control group. This result is not unexpected because QRF is a test of both speed and accuracy, and the user interface of a touchscreen tablet allows for faster clicking than does using a mouse on a computer or pencil on paper. The mean difference represents less than one third of a standard deviation in standard score and thus should not make an appreciable impact on clinical interpretation. However, when administering the TOD-S on a tablet, it is important to consider that the results of the speeded tests (WRF and QRF) may be a few standard score points higher.