ABCD_other_data

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Test for significant difference between the two groups on age, IQ, and gender ratio. There's no significant difference.

```
## Parsed with column specification:
## cols(
##   .default = col_integer(),
##   Group = col_character(),
##   `ABCD ID` = col_character(),
##   `Survey Timestamp` = col_character(),
##   `Age with month` = col_double(),
##   Sex = col_character(),
##   `Birth Date` = col_character(),
##   CTOPP_TOTAL = col_double(),
##   VSL_ACC = col_double(),
##   VSL_RT_SLOPE = col_double(),
##   TSL_ACC = col_double(),
##   TSL_RT_SLOPE = col_double()
## )
```

```
## See spec(...) for full column specifications.
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:xts':
##
##     first, last
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
## Classes 'tbl_df', 'tbl' and 'data.frame':    41 obs. of  26 variables:
##  $ Group                                                 : chr  "TYP" "TYP" "TYP" "TYP" ...
##  $ Record ID                                             : int  10 11 12 14 13 17 18 21 23 27 .
##  $ subjid                                                : chr  "ABCD_1702" "ABCD_1703" "ABCD_1
##  $ Survey Timestamp                                      : chr  "4/30/17 21:53" "4/18/17 13:50"
##  $ age_month                                             : num  21.6 20.6 22.9 23.7 20.7 ...
##  $ Age                                                   : int  21 20 22 23 20 19 18 23 22 28 .
##  $ Sex                                                   : chr  "F" "F" "F" "F" ...
##  $ Birth Date                                            : chr  "9/13/95" "8/19/96" "5/27/94" "8
##  $ kbit_nv                                               : int  125 120 125 111 125 92 125 115
##  $ TOWRE-2 Sight Word Efficiency: Standard Score         : int  93 100 113 108 127 107 77 86 98
##  $ TOWRE-2 Phonemic Decoding Efficiency: Standard Score  : int  100 115 110 100 112 108 75 85 1
##  $ TOWRE-2 Total Word Reading Efficiency Index: Standard Score: int  96 108 112 104 121 108 75 85 99
```

```
##  $ WRMT-3 Word ID: Standard Score                                : int  118 112 118 102 112 106 70 86 1
##  $ WRMT-3 Word Attack: Standard Score                            : int  104 112 98 93 104 104 64 79 93
##  $ WRMT-3 Basic Skills: Standard Score                           : int  111 112 108 97 108 105 66 81 105
##  $ WAIS-4 DS Forward: Standard Score                             : int  12 12 9 9 12 13 7 9 10 9 ...
##  $ WAIS-4 DS Backward: Standard Score                            : int  11 11 8 10 11 9 10 8 10 9 ...
##  $ WAIS-4 DS Total: Standard Score                               : int  13 11 9 10 12 11 9 8 10 10 ...
##  $ CTOPP-2 Elision: Standard Score                               : int  10 12 11 9 10 10 10 8 10 9 ...
##  $ CTOPP-2 Blending Words: Standard Score                        : int  12 16 12 13 14 13 4 8 15 12 ...
##  $ CTOPP-2 Non-Word Repetition: Standard Score                   : int  13 9 8 9 10 11 6 6 9 10 ...
##  $ CTOPP_TOTAL                                                   : num  11.7 12.3 10.3 10.3 11.3 ...
##  $ VSL_ACC                                                       : num  0.625 0.719 0.969 NA 0.594 0.969
##  $ VSL_RT_SLOPE                                                  : num  -7.249 1.566 -0.669 NA 0.893 ..
##  $ TSL_ACC                                                       : num  0.625 0.562 0.594 0.719 0.531 0
##  $ TSL_RT_SLOPE                                                  : num  7.98 6.77 32.07 -3.96 1.47 ...
##  - attr(*, "spec")=List of 2
##   ..$ cols   :List of 26
##   .. ..$ Group                                                   : list()
##   .. .. ..- attr(*, "class")= chr  "collector_character" "collector"
##   .. ..$ Record ID                                               : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ ABCD ID                                                 : list()
##   .. .. ..- attr(*, "class")= chr  "collector_character" "collector"
##   .. ..$ Survey Timestamp                                        : list()
##   .. .. ..- attr(*, "class")= chr  "collector_character" "collector"
##   .. ..$ Age with month                                          : list()
##   .. .. ..- attr(*, "class")= chr  "collector_double" "collector"
##   .. ..$ Age                                                     : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ Sex                                                     : list()
##   .. .. ..- attr(*, "class")= chr  "collector_character" "collector"
##   .. ..$ Birth Date                                              : list()
##   .. .. ..- attr(*, "class")= chr  "collector_character" "collector"
##   .. ..$ KBIT-2 Matrices: Standard Score                         : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ TOWRE-2 Sight Word Efficiency: Standard Score           : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ TOWRE-2 Phonemic Decoding Efficiency: Standard Score    : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ TOWRE-2 Total Word Reading Efficiency Index: Standard Score: list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ WRMT-3 Word ID: Standard Score                          : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ WRMT-3 Word Attack: Standard Score                      : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ WRMT-3 Basic Skills: Standard Score                     : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ WAIS-4 DS Forward: Standard Score                       : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ WAIS-4 DS Backward: Standard Score                      : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ WAIS-4 DS Total: Standard Score                         : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ CTOPP-2 Elision: Standard Score                         : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
```

```
##   .. ..$ CTOPP-2 Blending Words: Standard Score                    : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ CTOPP-2 Non-Word Repetition: Standard Score               : list()
##   .. .. ..- attr(*, "class")= chr  "collector_integer" "collector"
##   .. ..$ CTOPP_TOTAL                                               : list()
##   .. .. ..- attr(*, "class")= chr  "collector_double" "collector"
##   .. ..$ VSL_ACC                                                   : list()
##   .. .. ..- attr(*, "class")= chr  "collector_double" "collector"
##   .. ..$ VSL_RT_SLOPE                                              : list()
##   .. .. ..- attr(*, "class")= chr  "collector_double" "collector"
##   .. ..$ TSL_ACC                                                   : list()
##   .. .. ..- attr(*, "class")= chr  "collector_double" "collector"
##   .. ..$ TSL_RT_SLOPE                                              : list()
##   .. .. ..- attr(*, "class")= chr  "collector_double" "collector"
##   ..$ default: list()
##   .. ..- attr(*, "class")= chr  "collector_guess" "collector"
##   ..- attr(*, "class")= chr "col_spec"
```

```
##
##
## |                       |ABCD (N = 41)             |
## |:----------------------|:-------------------------|
## |**Age**                |                |
## |   min       |18.52                     |
## |   max       |45.5                      |
## |   mean (sd) |25.99 &plusmn; 6.67       |
## |**IQ**                 |                |
## |   min       |86                        |
## |   max       |130                       |
## |   mean (sd) |37; 112.95 &plusmn; 12.63 |
## |**Gender**             |                |
## |   F         |25 (61)                   |
## |   M         |16 (39)                   |
```

summarize the participant demographic info by groups

	Group: DD (N = 17)	Group: TYP (N = 24)
Age		
min	18.52	19.08
max	45.5	41.0
mean (sd)	26.53 ± 7.84	25.61 ± 5.85
IQ		
min	86	88
max	125	130
mean (sd)	14; 107.21 ± 12.96	23; 116.43 ± 11.32
Gender		
F	12 (71)	13 (54)
M	5 (29)	11 (46)

test whether groups

```
## Warning in wilcox.test.default(ABCD$age_month[ABCD$Group == "DD"],
## ABCD$age_month[ABCD$Group == : cannot compute exact p-value with ties
```

```
Wilcoxon rank sum test with continuity correction
```

data: ABCD$age_month[ABCD$Group == "DD"] and ABCD$age_month[ABCD$Group == "TYP"] W = 206.5, p-value = 0.9578 alternative hypothesis: true location shift is not equal to 0

```
## Warning in wilcox.test.default(ABCD$kbit_nv[ABCD$Group == "DD"],
## ABCD$kbit_nv[ABCD$Group == : cannot compute exact p-value with ties
```

```
Wilcoxon rank sum test with continuity correction
```

data: ABCD$kbit_nv[ABCD$Group == "DD"] and ABCD$kbit_nv[ABCD$Group == "TYP"] W = 91, p-value = 0.02772 alternative hypothesis: true location shift is not equal to 0

```
##
## Attaching package: 'reshape'
```

```
## The following object is masked from 'package:dplyr':
##
##     rename
```

```
##
## Attaching package: 'reshape2'
```

```
## The following objects are masked from 'package:reshape':
##
##     colsplit, melt, recast
```

```
Pearson's Chi-squared test with Yates' continuity correction
```

data: gender_table X-squared = 0.54321, df = 1, p-value = 0.4611

Other measurements that are significantly different

Mirror_delta_completion_time, CTOPP, TOWRE, WRMT, GORT

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  ABCD$CTOPP_TOTAL[ABCD$Group == "DD"] and ABCD$CTOPP_TOTAL[ABCD$Group == "TYP"]
## W = 28, p-value = 3.186e-05
## alternative hypothesis: true location shift is not equal to 0
```

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  ABCD$`TOWRE-2 Total Word Reading Efficiency Index: Standard Score`[ABCD$Group ==  and ABCD$`T
## W = 3.5, p-value = 8.583e-07
## alternative hypothesis: true location shift is not equal to 0
```

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  ABCD$`WRMT-3 Basic Skills: Standard Score`[ABCD$Group == "DD"] and ABCD$`WRMT-3 Basic Skills:
```

```
## W = 0, p-value = 4.773e-07
## alternative hypothesis: true location shift is not equal to 0
```

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  ABCD$`WRMT-3 Word Attack: Standard Score`[ABCD$Group == "DD"] and ABCD$`WRMT-3 Word Attack: S
## W = 0, p-value = 4.56e-07
## alternative hypothesis: true location shift is not equal to 0
```

Other measurements that are not significantly different

Rotary_delta, Mirror_delta_error,WAIS

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  ABCD$`WAIS-4 DS Total: Standard Score`[ABCD$Group == "DD"] and ABCD$`WAIS-4 DS Total: Standard
## W = 67.5, p-value = 0.003289
## alternative hypothesis: true location shift is not equal to 0
```

#Test for correlation