| **Author, Year, Country**  **Groups, N Enrollment/**  **N Final** | **Age at Intake**  **Mean months±SD** | **Measure** | **Baseline Score, Mean±SD** | **Follow-Up Score, Mean±SD** | **Analytic Data** |
| --- | --- | --- | --- | --- | --- |
| **RCTs** | | | | | |
| Dawson et al, 20121, 2  US  **IG:** ESDM, 24/24  **CG:** Eclectic therapy, 24/21  Quality: Good | **IG:** 23.9 ± 4.0  **CG:** 23.1 ± 3.9 | VABS Socialization | **IG:** 73.8 ± 7.7  **CG:** 72.4 ± 9.4  **IG/CG:** *P* = 0.594 | At 2 years:  **IG:** 69.2 ± 11.6  **CG:** 63.1 ± 9.3  **IG/CG:** *P* = 0.263 | No baseline group differences in any of the VABS domain scores  Significant group X Time differences in all reported VABS domain scores except socialization |
| Communication | **IG:** 68.4 ± 7.6)  **CG:** 69.6 ± 7.3)  **IG/CG:** *P* = 0.577 | **IG:** 82.1 ± 21.8  **CG:** 69.4 ± 15.8  **IG/CG:** *P* = 0.015 |
| Composite score | **IG:** 69.5 ± 5.7  **CG:** 69.9 ± 7.3  **IG/CG:** *P* = 0.844 | **IG:** 68.7 ± 15.9  **CG:** 59.1 ± 8.8  **IG/CG:** *P* = 0.011 |
| Daily living skills | **IG:** 87.3 ± 11.4  **CG:** 86.8 ± 10.0  **IG/CG:** *P* = 0.381 | **IG:** 64.7 ± 12.4  **CG:** 58.0 ± 8.1  **IG/CG:** *P* = 0.013 |
| Motor skills | **IG:** 70.9 ± 6.2  **CG:** 72.5 ± 6.5  **IG/CG:** *P* = 0.862 | **IG:** 77.4 ± 19.8  **CG:** 64.1 ± 12.3  **IG/CG:** *P* = 0.009 |
| Sallows et al. 20053  **IG:** Clinic directed UCLA/Lovaas-based early intensive intervention, 13/13  **CG:** Parent-directed UCLA/Lovaas-based early intensive intervention, 10/10  **Ga:** Rapid learners by Early Learning Measure  **Gb:** Moderate learners by Early Learning Measure  Quality: Good | **IG:** 33.23 ± 3.89  **CG:** 34.20 ± 5.06 | VABS Communication | **IG:** 57.46 ± 4.97  **CG:** 63.20 ± 5.58  **Ga:** 60.82 ± 4.02  **Gb:** 59.17 ± 7.22 | **IG:** 73.69 ± 32.32  **CG:** 81.40 ± 24.33  **Ga:** 105.09 ± 12.83  **Gb:** 51.33 ± 10.94  Teacher rated:  **Ga:** 94.44 ± 13.97  **Gb:** 58.58 ± 7.90 | No significant differences between groups (IG/CG) at pre- or posttest.  Combining children in both groups (IG+ CG), pretest to posttest gains were significant for Vineland Communication, F (1, 21)= 7.57, p<0.05, Vineland Socialization, F (1, 21)=10.30, p<0.01  Ga showed significant gains in all areas measured:  Communication, F (1, 21)=147.07, p<0.01, Daily Living Skills (F (1,21)=20.50, p<,01), Socialization, F (1, 21)=42.89, p<0.01  Applied Behavior Composite,  F (1, 21) = 54.17, p< .01  Significant group differences (Ga vs. Gb) in the Teacher ratings of Communication (t=6.84, p<0.01) and Socialization (t=4.60, p<0.01) |
| Daily living skills | **IG:** 63.92 ± 5.53  **CG:** 64.20 ± 3.68  **Ga:** 66.45 ± 4.25  **Gb:** 61.83 ± 4.20 | **IG:** 66.23 ± 25.95  **CG:** 64.20 ± 12.42  **Ga:** 82.27 ± 16.34  **Gb:** 49.83 ± 10.61 |
| Composite | **IG:** 59.54 ± 5.31  **CG:** 60.90 ± 5.94  **Ga:** 61.73 ± 4.59  **Gb:** 58.67 ± 6.09 | **IG:** 69.00 ± 28.04  **CG:** 66.70 ± 14.68  **Ga:** 88.64 ± 15.68  **Gb:** 49.08 ± 7.76 |
| Socialization | **IG:** 58.38 ± 6.17  **CG:** 60.30 ± 5.76  **Ga:** 61.55 ± 6.58  **Gb:** 57.08 ± 4.63 | **IG:** 73.92 ± 23.49  **CG:** 68.90 ± 10.11  **Ga:** 87.73 ± 14.94  **Gb:** 57.08 ± 6.40  Socialization teacher rated:  **Ga:** 89.89 ± 18.36  **Gb:** 61.58 ± 6.02 |
| Smith et al. 20004  US  **IG:** UCLA/Lovaas-based intervention, 15/15  **CG:** Parent training from Lovaas manual, 13/13  Quality: Fair | **IG:** 36.07 ± 6.00  **CG:** 35.77 ± 5.77 | VABS  Composite | **IG:** 63.4 ± 9.35  **CG:** 58.5 ± 16.58 | **IG:** 61.19 ± 29.72  **CG:** 58.50 ± 16.58 | No statistically significant group difference in any of the VABS measures both at intake and after treatment |
| Communication | **IG:** 58.20 ± 5.56  **CG:** 62.00 ± 6.11 | **IG:** 67.87 ± 30.08  **CG:** 60.77 ± 17.26 |
| Socialization | **IG:** 62.4 ± 7.82  **CG:** 69.15 ± 8.75 | **IG:** 66.33 ± 24.78  **CG:** 68.92 ± 16.94 |
| Daily living Skills | **IG:** 69.93 ± 8.37  **CG:** 70.62 ± 11.50 | **IG:** 62.33 ± 25.76  **CG:** 63.00 ± 16.97 |
| **Non-randomized trials** | | | | | |
| Peters-Scheffer et al. 20135  Netherlands  **IG:** Low intensity Lovaas-based intervention+specialized preschool, 20/20  **CG:** Eclectic therapy, 20/20  Quality: Good | **IG+CG:** 62.52 ± 16.96 | Adaptive behavior  Composite | **IG:** 18.35 (3.41)  **CG:** 19.82 (4.71) | **IG:** 37.35 (13.05)  **CG:** 26.71 (9.84), d=1.74, p<0.001 | Both groups made significant gains in total adaptive skills (F (1.40, 44.70) = 59.47; p < .001), but in the treatment group the gains were significantly larger (F (1.40, 44.70) = 13.58; p < .001). |
| Communication | **IG:** 23.94 (7.64)  **CG:** 24.35 (9.80) | **IG:** 43.71 (17.68)  **CG:** 32.35 (14.56), d=1.41 |
| Daily living skills | **IG:** 20.82 (6.12)  **CG:** 23.00 (9.26) | **IG:** 39.29 (11.13)  **CG:** 29.71 (12.15), d=1.62 |
| Socialization | **IG:** 19.76 (3.36)  **CG:** 22.88 (5.79) | **IG:** 39.35 (10.58)  **CG:** 29.71 (9.99), d=2.61 |
| Peters-Scheffer et al. 20106  Netherlands  **IG:** Specialized preschool +UCLA/ Lovaas-based intervention, 12/12  **CG:** Eclectic therapy, 22/22  Quality: Fair | **IG:** 53.5 ± 5.52  **CG:** 52.95 ± 11.14 | VABS  Composite | **IG:** 20.83 ± 6.69  **CG:** 19.18 ± 4.14 | **IG:** 31.75 ± 10.96  **CG:** 22.05 ± 7.47 | At pre-treatment, no significant group differences in any domain score  Both groups made gains after treatment but gains were larger in the IG group.  Composite: F (1,32)=15.68, p<0.01  Communication: F (1,32)=6.48, p=0.02  Daily Living: F (1,32)=13.17, P<0.01  Socialization: F (1,32)=44.86, p<0.01 |
| Communication | **IG:** 26.92 ± 12.12  **CG:** 25.00 ± 10.00 | **IG:** 39.42 ± 15.39  **CG:** 29.95 ± 13.39 |
| Daily living skills | **IG:** 23.83 ± 7.28  **CG:** 20.14 ± 4.68 | **IG:** 33.25 ± 9.04  **CG:** 23.23 ± 7.70 |
| Socialization | **IG:** 20.75 ± 4.54  **CG:** 24.64 ± 8.18 | **IG:** 34.08 ± 8.14  **CG:** 25.14 ± 7.21 |
| Hayward et al. 20097, 8  UK  **IG:** Intensive clinic-based UCLA/Lovaas-based intervention, 23/20  **CG:** Intensive parent-managed treatment, 21/19  Quality: Fair | **IG:** 35.7 ± 6.2  **CG:** 34.4 ± 5.7 | VABS composite score | **IG:** 62.3 ± 6.8  **CG:** 65.1 ± 10.4  **IG+CG:** 63.5 ± 8.8 | **IG:** 68.4 ± 14.5  **CG:** 72.5 ± 17.3  **IG+CG:** 69.9 ±15.9 | No significant group differences in composite measure both at intake and at follow-up  Combining both groups, (IG+CG): Mean change scores:  Composite score=6.4, p<0.001  Communication: 7.6, p<0.01  Daily Living:1.8, p=ns  Socialization: 5.0, p<0.05  Motor: 6.0 , p<0.05 |
| Reed et al. 20079  UK  **IG:** High intensity intervention, 14/14  **IGa:** High intensity with focus on Lovaas techniques, 4/4  **IGb:** High intensity with focus on verbal behavior, 5/5  **IGc:** High intensity with focus on CABAS methods, 5/5  **CG:** Low intensity intervention in home-based direct teaching sessions, 13/13  Quality: Fair | **IG:** 42.9 (14.8)  **IGa:** 47.5 (13.5)  **IGb:** 38.0 (9.9)  **IGc:** 44.2 (20.5)  **CG**: 40.8 (5.6) | VABS composite  score | **IG:** 59.3 ± 10.1  **IGa:** 59.8 ± 16.7  **IGb:** 58.2 ± 6.5  **IGc:** 60.0 ± 8.6  **CG:** 56.5 ± 4.4 | VABS composite gain score  **IG:** NR  **IGa:** t<1, ES=0.03  **IGb:** t<1, ES=0.18  **IGc:** t(4)=1.07, ES=0.53  **CG:** NR | Nonsignificant group differences in adaptive behavior, F (2,11)=2.99, p<0.07 |
| Eikeseth et al. 200210, 11  Norway  **IG:** UCLA/Lovaas-based intervention, 13/13  **CG:** Eclectic therapy, 12/12  Quality: Fair | **IG:** 66.31 ± 14.71  **CG:** 65 ± 10.95 | VABS  Communication | **IG:** 58.23 ± 9.21  **CG:** 63.17 ± 16.11 | **IG:** 73.93 ± 16.55  **CG:** 61.58 ± 13.37 | No group difference at intake on any of the VABS scores  Mean change scores significantly different between groups for communication (p<0.01) and composite scores (p<0.05) |
| Daily living skills | **IG:** 56.92 ± 9.8  **CG:** 57.00 ± 15.92 | **IG:** 66.15 ± 16.55  **CG:** 62.5 ± 10.97 |
| Composite | **IG:** 55.77 ± 8.96  **CG:** 60.00 ± 13.2 | **IG:** 67 ± 16.3  **CG:** 60.17 ± 11.69 |
| Socialization | **IG:** 59.92 ± 7.19  **CG:** 62.17 ± 10.32 | **IG:** 59.92 ± 7.19  **CG:** 70.67 ± 13.66 |
| **Prospective cohort studies** | | | | | |
| Eldevik et al. 201212  Norway  **IG:** Preschool-based early intensive intervention, 31/31  **CG:** Eclectic therapy, 12/12  Quality: Fair | **IG:** 42.2 ± 9.0  **CG:** 46.2 ± 12.4 | VABS  Adaptive behavior composite | **IG:** 62.5 ± 8.2 (46-77)  **CG:** 58.9 ± 7.8 (50-73) | **IG:** 68.4 ± 12.6 (46-97)  **CG:** 59.6 ± 11.8 (47-83) | CG made significantly larger gains on Composite scores, F (1,39)=4.74, p=0.036, Communication, F (1,38)=4.82, p=0.034 and socialization, F (1,38)=7.79, p<0.008  Daily living skills were not different between groups, F (1,38)=2.91, p=0.094  Standardized mean difference effect size for change in compact score=0.73 (95%CI: 0.05-1.36) |
| Communication | **IG:** 61.9 ± 10.2 (48-89)  **CG:** 60.0 ± 9.6 (49-81) | **IG:** 70.5 ± 16.9 (42-114)  **CG:** 60.0 ± 14.5 (42-84) |
| Daily Living | **IG:** 69.9 ± 10.8 (48-89)  **CG:** 64.8 ± 10.6 (54-91) | **IG:** 72.0 ± 12.9 (47-93) **CG:** 63.2 ± 14.2 (48-95) |
| Socialization | **IG:** 63.3 ± 9.8 (49-97)  **CG:** 63.1 ± 8.9 (53-82) | **IG:** 69.1 ± 12.0 (49-90) **CG:** 60.8 ± 8.6 (41-80) |
| Eikeseth et al.  201213  Norway/Sweden  **IG:** Early intensive intervention, 35/13-15 depending on outcome  **CG:** Eclectic therapy, 24/NR  Quality: Fair | IG: 3.9 ± 0.9 years  CG: 4.4 ± 1.2 years | VABS-Total | **IG:** 67.0 ± 10.3  **CG:** 63.6 ± 8.1 | **IG:** 75.3 ± 12.0  **CG:** 64.0 ± 12.5 | No baseline group differences  At 1 year follow-up, IG scored significantly higher on all VABS scales as compared to CG (p<0.05)  Effect sizes for VABS :  Total (composite) = 0.92, Communication = 1.08, ADL=0.71  Socialization = 0.75, Motor = 0.70 |
| Communication | **IG:** 67.1 ± 14.0  **CG:** 65.5 ± 14.2 | **IG:** 81.3 ± 16.9  **CG:** 63.6 ± 16.0 |
| Activities of daily living | **IG:** 71.8 ± 12.8  **CG:** 67.5 ± 10.9 | **IG:** 78.3 ± 14.4  **CG:** 68.0 ± 14.8 |
| Motor Skills | **IG:** 75.9 ± 12.8  **CG:** 72.5 ± 10.6 | **IG:** 80.6 ± 10.6  **CG:** 71.8 ± 14.4 |
| Itzchak et al. 201114, 15  Israel  **IG:** ABA-based approach, 45/45  **CG:** Eclectic approach, 33/33  Quality: Fair | **IG:** 25.1 ± 3.9  **CG:** 26.0 ± 4.6 | VABS-Socialization standard score | **IG:** 67.8 ± 7.7  **CG:** 70.7 ±7.7 | **IG:** 69.6 ± 12.4  **CG:** 77.4 ± 14.4 | No significant difference between the 2 groups in VABS scores.  IG+CG:  Significant predictors of VABS scores at 1 year follow-up were baseline MSEL-verbal (p<0001) maternal age (p<0.01) and autism severity X baseline MSEL-Verbal (p<0.05) |
| VABS-Communication standard score | **IG:** 67.0 ± 7.8  **CG:** 69.5 ± 10.7 | **IG:** 72.9 ± 14.7  **CG:** 78.8 ± 16.2 |
| VABS Composite score | **IG:** 66.2 ± 9.6 (49-75)  **CG:** 68.6 ± 6.3 (59-81) **IG+CG**: 67.4 ± 6.4 | **IG:** NR  **CG:** NR  **IG+CG**: 68.9 ± 13.0 |
| VABS-Daily Living standard score | **IG:** 67.7 ± 7.0  **CG:** 69.4 ± 6.0 | **IG:** 67.8 ± 10.9  **CG:** 73.0 ± 14.6 |
| VABS-Motor skills standard score | **IG:** 86.2 ± 11.4  **CG:** 88.1 ± 11.0 | **IG:** 72.0 ± 12.9  **CG:** 84.5 ± 13.0 |
| Cohen et al. 200616  US **IG:** UCLA/Lovaas-based intervention, 21/21 **CG:** Eclectic therapy, 21/21  Quality: Fair | **IG:** 30.2 ± 5.8  **CG:** 33.2 ± 3.7 | VABS  Communication | **IG:** 69.4 ± 11.8  **CG:** 65.0 ± 6.8 | **IG:** NR  **CG:** NR  **IG/CG:** *P* < 0.05 | Groups significantly differed in VABS composite score , p<0.01 as well as in individual scores,  Communication and Daily Living Skills |
| Composite | **IG:** 69.8 ± 8.1  **CG:** 70.6 ± 9.6 | Mean change:  **IG:** 9 (n=20)  **CG:** -4 (n=20)  **IG/CG:** *P* < 0.01 Children in the average range, n:  **IG:** 8  **CG:** 3  **IG/CG:** *P* = 0.10 |
| Daily Living skills | **IG:** 73.2 ± 9.2  **CG:** 72.7 ± 12.5 | **IG:** NR  **CG:** NR  **IG/CG:** *P* < 0.05 |
| Social skills | **IG:** 70.3 ± 10.9  **CG:** 75.1 ± 13.0 | **IG:** NR  **CG:** NR  **IG/CG:** *P* < 0.10 |
| Howard et al. 200517  US  **IG:** UCLA/Lovaas-based intervention, 37/29  **CG1:** Intensive eclectic therapy  **CG2:** Non-intensive eclectic therapy  **CG2+CG3:** 41/32  Quality: Fair | **IG:** 30.86 ± 5.16  **CG1:** 37.44 ± 5.68  **CG2:** 34.56 ± 6.53 | VABS-Composite | **IG:** 70.46 ± 11.85  **CG1:** 69.81 ± 10.48  **CG2:** 71.62 ± 10.47 | **IG:** 81.32 ± 11.14  **CG1:** 69.25 ± 12.91  **CG2:** 68.25 ± 9.86 | Significant difference in composite scores between IG and CG1/CG2, p<0.01  Significant difference in Self-help scores between IG and CG1/CG2, p<0.01 |
| Denver Developmental Screening Test II, DP-II, RIDES for Self-help | **IG:** 70.71 ± 10.14  **CG1:** 68.06 ± 11.61  **CG2:** 73.43 ± 10.39 | **IG:** 76.56 ± 11.59  **CG1:** 70.00 ± 11.92  **CG2:** 65.19 ± 8.84 |
| **Retrospective cohort studies** | | | | | |
| Flanagan et al. 201218, 19  Canada  **IG:** Intensive behavioral intervention, 61/61  **CG:** Eclectic therapy 61/61  Quality: Fair | **IG:** 42.93 ± 11.53  **CG:** 42.79 ± 10.51 | VABS standard scores composite | **IG:** 55.38 ± 7.00  **CG:** 55.49 ± 7.11 | **IG:** 56.34 ± 14.40  **CG:** 52.19 ± 8.77 | Estimated marginal scores:  **IG:** 56.96  **CG:** 50.66 (p=0.008), d=0.53 |
| Ratio scores  Composite | **IG:** 30.78 ± 10.78  **CG:** 30.79 ± 10.67 | **IG:** 41.77 ± 20.26  **CG:** 31.15 ± 11.82 | **IG:** 40.75  **CG:** 30.32 (p=0.002), d=0.63 |
| Communication | **IG:** 25.47 ± 15.81  **CG:** 25.50 ± 11.97 | **IG:** 46.60 ± 29.91  **CG:** 30.33 ± 16.98 | **IG:** 43.45  **CG:** 29.80 (p=0.006), d=0.56 |
| Daily Living Skills | **IG:** 42.79 ± 11.97  **CG:** 42.87 ± 12.11 | **IG:** 44.83 ± 14.01  **CG:** 40.03 ± 11.06 | **IG:** 45.04  **CG:** 38.80 (p=0.023), d=0.49 |
| Socialization | **IG:** 24.08 ± 9.36  **CG:** 23.99 ± 11.22 | **IG:** 33.90 ± 19.04  **CG:** 23.11 ± 10.85 | **IG:** 33.49  **CG:** 21.88 (p=0.001), d=0.75 |

ABA=Applied Behavior Analysis; ADL=Activities of Daily Living; CABAS=Comprehensive Application of Behavior Analyst; CG=Control Group; DP-II=Developmental Profile II; ESDM=Early Start Denver Model; IG=Intervention Group; MSEL=Mullen Scales of Early Learning; NR=Not Reported; VABS=Vineland Adaptive Behavior Scale.