Power Tables for Effect Size d

(from Cohen 1988, pg. 55)

two-tailed α = .05 or one-tailed α = .025

	d										
Power	**.10**	**.20**	**.30**	**.40**	**.50**	**.60**	**.70**	**.80**	**1.0**	**1.20**	**1.40**
.25	332	84	38	22	14	10	8	6	5	4	3
.50	769	193	86	49	32	22	17	13	9	7	5
.60	981	246	110	62	40	28	21	16	11	8	6
2/3	1144	287	128	73	47	33	24	19	12	9	7
.70	1235	310	138	78	50	35	26	20	13	10	7
.75	1389	348	155	88	57	40	29	23	15	11	8
.80	1571	393	175	99	64	45	33	26	17	12	9
.85	1797	450	201	113	73	51	38	29	19	14	10
.90	2102	526	234	132	85	59	44	34	22	16	12
.95	2600	651	290	163	105	73	54	42	37	19	14
.99	3675	920	409	231	148	103	76	58	38	27	20

two-tailed α = .01 or one-tailed α = .005

	d										
Power	**.10**	**.20**	**.30**	**.40**	**.50**	**.60**	**.70**	**.80**	**1.0**	**1.20**	**1.40**
.25	725	183	.82	47	31	22	17	13	9	7	6
.50	1329	333	149	85	55	39	29	22	15	11	9
.60	1603	402	180	102	66	46	34	27	18	13	10
2/3	1810	454	203	115	74	52	39	30	20	14	11
.70	1924	482	215	122	79	55	41	32	21	15	12
.75	2108	528	236	134	86	60	45	35	23	17	13
.80	2338	586	259	148	95	67	49	38	25	18	14
.85	2611	654	292	165	106	74	55	43	28	20	15
.90	2978	746	332	188	120	84	62	48	31	22	17
.95	3564	892	398	224	144	101	74	57	37	26	20
.99	4808	1203	536	302	194	136	100	77	50	35	26

Table values represent the number of participants *per condition* (n) needed to obtain a significant result at the given alpha, for that effect size, and power level.

Example: Previous research suggests the given effect size estimate between the experimental and control conditions is d=1.0 (one standard deviation apart). To design a study at the recommended level of 80% power, how many participants do I need?

for two-tailed α = .05, d=1.0, and Power=.80.....n = 17 (N = 34 for Between Groups)
(N = 17 for Within Groups)

Power Tables for Effect Size r

(from Cohen 1988, pg. 102)

two-tailed α = .05 or one-tailed α = .025

	r								
Power	**.10**	**.20**	**.30**	**.40**	**.50**	**.60**	**.70**	**.80**	**.90**
.25	167	42	20	12	8	6	5	4	3
.50	385	96	42	24	15	10	7	6	4
.60	490	122	53	29	18	12	9	6	5
2/3	570	142	63	34	21	14	10	7	5
.70	616	153	67	37	23	15	10	7	5
.75	692	172	75	41	25	17	11	8	6
.80	783	194	85	46	28	18	12	9	6
.85	895	221	97	52	32	21	14	10	6
.90	1047	259	113	62	37	24	16	11	7
.95	1294	319	139	75	46	30	19	13	8
.99	1828	450	195	105	64	40	27	18	11

two-tailed α = .01 or one-tailed α = .005

	r								
Power	**.10**	**.20**	**.30**	**.40**	**.50**	**.60**	**.70**	**.80**	**.90**
.25	362	91	40	23	15	11	8	6	5
.50	662	164	72	39	24	16	12	8	6
.60	797	198	87	47	29	19	13	9	7
2/3	901	223	97	53	32	21	15	10	7
.70	958	237	103	56	34	23	15	11	7
.75	1052	260	113	62	37	25	17	11	8
.80	1163	287	125	68	41	27	18	12	8
.85	1299	320	139	76	45	30	20	13	9
.90	1481	365	158	86	51	34	22	15	9
.95	1773	436	189	102	62	40	26	17	11
.99	2390	588	254	137	82	52	34	23	13

Table values represent the total number of participants needed to obtain a significant result at the given alpha, for that effect size, and power level.

Example: to detect an r=.5 using with a two-tailed α = .01 at 80% power, I need 41 participants.

Interpolation: What about r=.35, at 80% power for a two-tailed α = .05?

$$\text{sample size} = 46 + \frac{(.40 - .35)}{(.40 - .30)} * (85-46) = 65.5 \text{ ---> } 66$$