

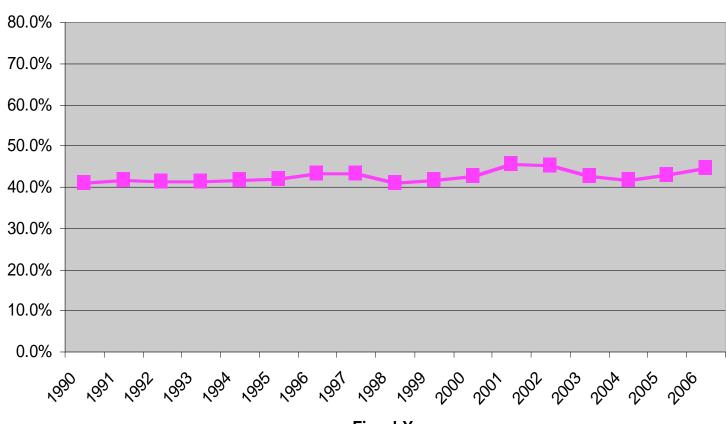
The Involvement of Women in NIH Extramural Research, Research Training, and Career **Development Programs**







Female Postdoctoral Ruth L. Kirschstein NRSA Individual Fellowship Recipients (F32)









How does NIH identify the sex/gender of applicants for NIH Research Grants?

- The NIH on the Personal Data Page of the PHS 398 Grant Application form (see http://grants.nih.gov/grants/funding/phs398/personal.doc.
- For the electronic application SF424 (R&R)
 http://grants.nih.gov/grants/funding/424/index.htm this kind of information is collected in the Commons
 https://commons.era.nih.gov/commons/
- Providing information on sex/gender is voluntary.
- The information is not provided to reviewers.
- The information is protected by the Privacy Act.
- About 99% of all awardees provide sex/gender information.





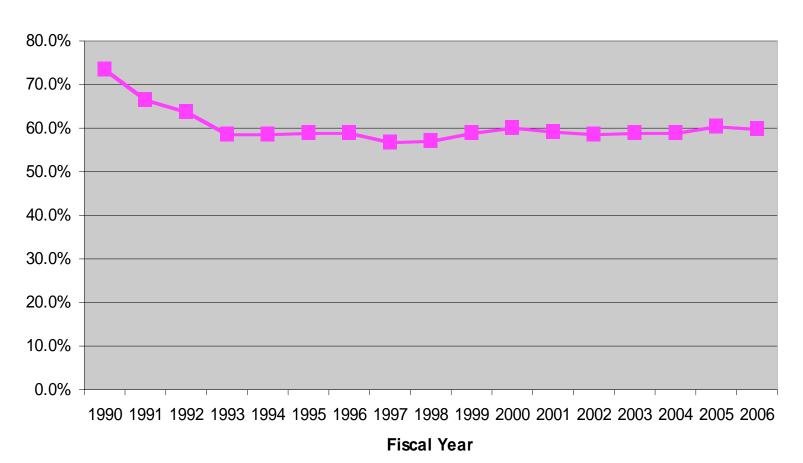
How has the participation of Women in NIH Research Training Programs Changed over Time?

- The number of women receiving individual predoctoral NRSA fellowships increased nearly 5 fold since 1993, but the share of fellowships going to women declined from 73% in 1990 to about 60% in 1993 and has been stable since that time.
- Women have slowly increased their share of individual postdoctoral NRSA fellowships. In FY 2006 slightly more than 44% of the recipients were women.
- Women have steadily increased their share of both predoctoral and postdoctoral positions on NRSA research training grants. In FY 2006 women comprised more than 55% of the predoctoral positions and more than 50% of the postdoctoral positions.





Female Predoctoral Ruth L. Kirschstein NRSA Predoctoral Fellowship Recipients (F31)







NIH Research Fellowship Awards, FY 1990 - 2006

	2000												
EV.	Tatal	Esmals.		emale as %									
FY	Total	Female	Male	of coded									
	Pre-Doc Fellowship (F30, F31)												
1990	334	172	63	73.2%									
1991	512	275	140	66.3%									
1992	531	277	159	63.5%									
1993	587	314	224	58.4%									
1994	646	348	247	58.5%									
1995	625	341	239	58.8%									
1996	673	375	264	58.7%									
1997	665	358	275	56.6%									
1998	664	358	271	56.9%									
1999	692	380	268	58.6%									
2000	741	410	275	59.9%									
2001	907	498	343	59.2%									
2002	1,021	566	401	58.5%									
2003	1,111	623	437	58.8%									
2004	1,202	682	479	58.7%									
2005	1,267	745	489	60.4%									
2006	1,370	785	529	59.7%									





Women and Men Supported by NIH Postdoctoral Fellowships, FY 1990 - 2006

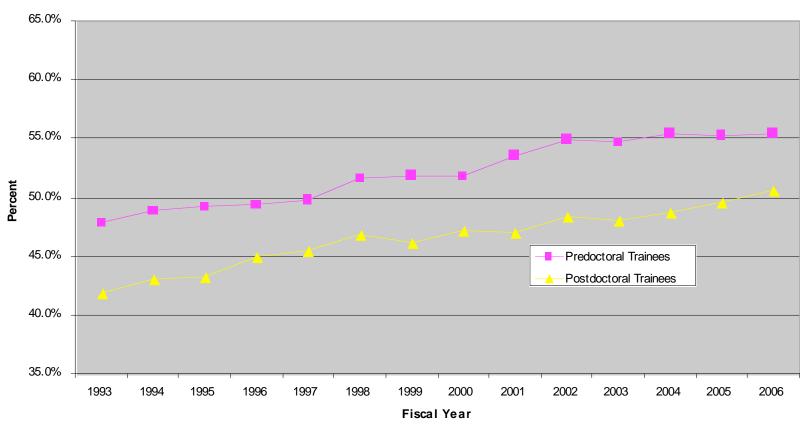
Postdoctoral Fellowships (F32)

FY	Total	Female	Male	Female as % of coded
1990	1654	515	737	41.1%
1991	1660	549	776	41.4%
1992	1645	579	820	41.4%
1993	1637	621	882	41.3%
1994	1710	654	914	41.7%
1995	1877	735	1009	42.1%
1996	1941	779	1028	43.1%
1997	1950	779	1030	43.1%
1998	1878	718	1030	41.1%
1999	1910	748	1054	41.5%
2000	1851	744	1002	42.6%
2001	1805	786	942	45.5%
2002	1656	721	867	45.4%
2003	1614	669	894	42.8%
2004	1577	646	901	41.8%
2005	1617	682	910	42.8%
2006	1587	672	838	44.5%





Women as a Percentage of Predoctoral and Postodoctoral Trainees Supported by Ruth L. Kirschstein Institutional Research Training Grants







Women and Men Supported as Predoctoral and Postdoctoral Trainees on NIH Research Training Grants, FY 1993-2006

		Pre-I	Оос		Post-Doc				
				Women as Percent of				Women as Percent of	
FY	Total	Women	Men	Coded	Total	Women	Men	Coded	
1993	8626	4117	4493	47.8%	4496	1879	2606	41.9%	
1994	8969	4364	4573	48.8%	4614	1983	2620	43.1%	
1995	9031	4426	4569	49.2%	4439	1915	2510	43.3%	
1996	8988	4369	4480	49.4%	4419	1964	2408	44.9%	
1997	8830	4167	4198	49.8%	4422	1922	2307	45.4%	
1998	9216	4035	3793	51.5%	4485	1885	2136	46.8%	
1999	9544	4317	4005	51.9%	4559	1954	2279	46.1%	
2000	9287	4558	4246	51.8%	4613	2108	2359	47.2%	
2001	9604	4992	4328	53.6%	4858	2247	2524	47.1%	
2002	9957	5283	4332	54.9%	5069	2402	2562	48.4%	
2003	10400	5487	4549	54.7%	5323	2517	2714	48.0%	
2004	10596	5679	4572	55.4%	5354	2562	2684	48.6%	
2005	9967	5372	4346	55.3%	4760	2323	2355	49.6%	
2006	5994	3232	2595	55.5%	2212	1099	1069	50.5%	

gender_training_060929_fy2006_rfm

trainee data based on receipt of appointment forms from trainees

between 1 and 10 percent of records uncoded over the years from 1993-2006



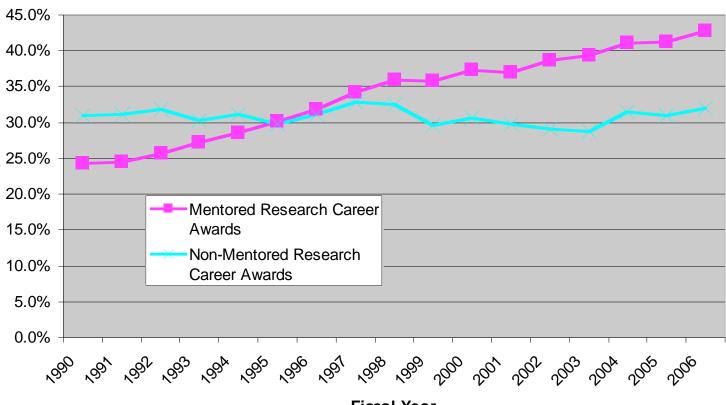


- How has the participation of Women in the NIH Career Development Program Changed over Time?
 - The number of women supported by <u>mentored</u> research career development awards (K01, K08, K23) has increased more than 10 fold since 1990.
 - The share of awards going to women has increased substantially.
 - In 1990 24% of mentored career awards were held by women.
 - That proportion increased to nearly 43% by FY 2006.
 - The number of women supported by <u>independent</u> research career awards (K02, K24) has increased more than 4 fold since 1990.
 - The proportion of awards going to women has remained steady at approximately 31% since 1990.





Female Recipeints on Mentored (K01, K08, K23) and non-Mentored (K02, K04) Research Career Awards









NIH Research Career Development Awards, FY 1990 - 2005

FY	Total	Female	Male	Female as % of coded
М	entored Resea	rch Career (K	01, K08, K23)
1990	549	120	373	24.3%
1991	573	128	395	24.5%
1992	620	148	427	25.7%
1993	686	176	469	27.3%
1994	784	217	541	28.6%
1995	849	249	577	30.1%
1996	1,016	312	670	31.8%
1997	1,194	395	758	34.3%
1998	1,398	481	856	36.0%
1999	1,602	545	979	35.8%
2000	1,941	676	1,140	37.2%
2001	2,166	749	1,275	37.0%
2002	2,428	876	1,389	38.7%
2003	2,719	998	1,541	39.3%
2004	2,928	1,131	1,621	41.1%
2005	3,045	1,195	1,698	41.3%
2006	3,018	1,222	1,633	42.8%





NIH Research Career Development Awards, FY 1990 - 2005

		000 		
				emale as %
FY	Total	Female	Male	of coded
	Other Resear	rch Career (K0	2, K24)	
1990	119	36	80	31.0%
1991	121	37	82	31.1%
1992	118	37	79	31.9%
1993	136	40	92	30.3%
1994	146	44	97	31.2%
1995	152	44	104	29.7%
1996	192	58	128	31.2%
1997	225	72	147	32.9%
1998	256	81	168	32.5%
1999	358	103	244	29.7%
2000	456	135	307	30.5%
2001	509	148	350	29.7%
2002	539	153	372	29.1%
2003	565	159	393	28.8%
2004	519	159	347	31.4%
2005	513	156	347	31.0%
2006	482	151	321	32.0%



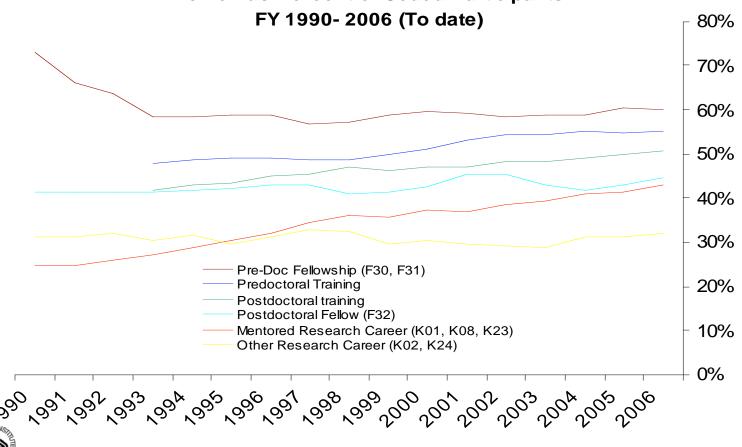


- How has the participation of Women in NIH research training and Career Development Programs Changed over Time?
 - Women have increased their share of predoctoral and postdoctoral research training and mentored career development positions substantially since 1990.
 - The share of fellowship positions and independent career awards awarded to women has remained stable.
 - Women are now close to parity with men on training and mentored career development awards but still lag behind men on independent career development awards.





Participation Rates for Women in Selected Research Training and Career Development Activities Women as Percent of Coded Participants



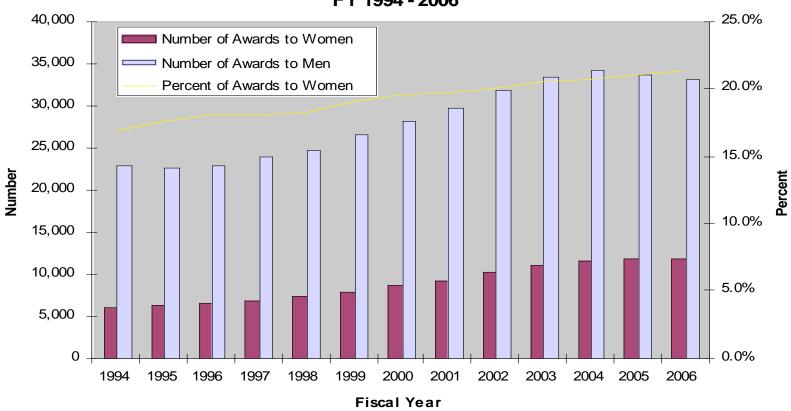


- How has the participation of women in NIH research programs changed over time?
 - Looking at all research grants (includes all research project grants, center grants, research career awards, SBIR, STTR and a few others)
 - Over the period from 1994 to 2006 the total number of research grants going to women has nearly doubled and the total amount of those awards has increased more than 3 fold.
 - Women received 16.9% of all research grants in 1994 and 21.3% in 2006.
 - The average size of a research grant to female PIs is about 80% of the average size of a research grant awarded to a male PI.





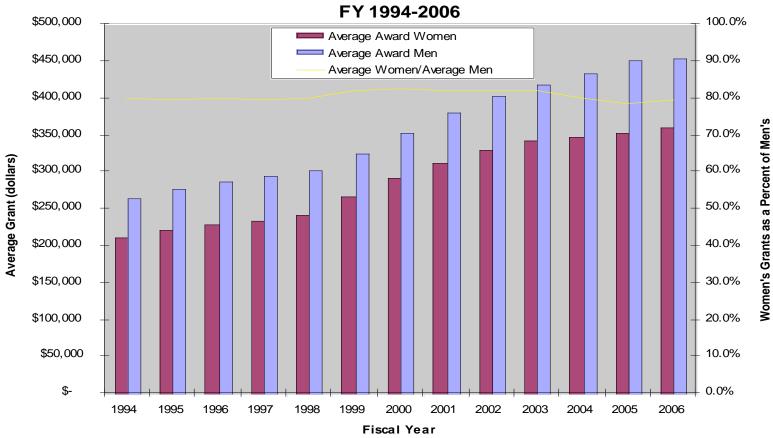
Number of Research Grant Awards to Women and Men and Percentage of Awards to Women FY 1994 - 2006







Average Size of Research Grant Awards to Women and Men Along with Women's Grants Expressed as a Percentage of the Size of Men's Grants







NIH Competing and Non-Competing Research Grant Awards, FY 1994 - 2006

		All Awards			Awards to Won	nen	Awards to Men			
FY	Number	Amount	Average	Number	Amount	Average	Number	Amount	Average	
4004	00.070	A 7.040 450 500	A 054 040	0.000	Φ4 004 000 44E	Φ 044 050	00.070	Φ 0.075 700 400	Φ 004 507	
1994	30,373	\$ 7,648,458,566	\$ 251,818	,	. , , ,	\$ 211,858	22,970	\$ 6,075,720,186	\$ 264,507	
1995	29,957	\$ 7,928,100,482	\$ 264,649	6,308	\$1,391,220,789	\$ 220,549	22,686	\$ 6,302,308,382	\$ 277,806	
1996	30,554	\$ 8,393,484,767	\$ 274,710	6,590	\$1,517,684,434	\$ 230,301	23,028	\$ 6,619,427,189	\$ 287,451	
1997	32,109	\$ 9,046,542,619	\$ 281,745	6,974	\$1,633,967,197	\$ 234,294	24,118	\$ 7,130,122,155	\$ 295,635	
1998	33,700	\$ 9,800,496,534	\$ 290,816	7,362	\$1,778,403,076	\$ 241,565	24,877	\$ 7,517,738,555	\$ 302,196	
1999	35,874	\$11,229,447,858	\$ 313,025	8,040	\$2,144,490,360	\$ 266,728	26,753	\$ 8,701,158,914	\$ 325,240	
2000	38,301	\$13,002,508,001	\$ 339,482	8,713	\$2,541,554,969	\$ 291,697	28,320	\$ 9,989,878,211	\$ 352,750	
2001	40,664	\$14,907,516,041	\$ 366,602	9,386	\$2,937,614,964	\$ 312,978	29,890	\$11,412,976,879	\$ 381,833	
2002	43,520	\$16,830,194,185	\$ 386,723	10,199	\$3,367,396,540	\$ 330,169	31,801	\$12,817,285,291	\$ 403,047	
2003	46,081	\$18,461,462,170	\$ 400,631	11,080	\$3,795,380,153	\$ 342,543	33,416	\$14,010,117,983	\$ 419,264	
2004	47,464	\$19,607,812,023	\$ 413,109	11,693	\$4,067,519,485	\$ 347,859	34,200	\$14,838,720,014	\$ 433,881	
2005	47,345	\$20,206,478,806	\$ 426,785	11,998	\$4,245,982,038	\$ 353,779	33,870	\$15,247,828,912	\$ 450,304	
2006	46,797	\$20,154,363,154	\$ 430,676	11,929	\$4,297,673,965	\$ 360,271	33,107	\$14,991,284,499	\$ 452,813	



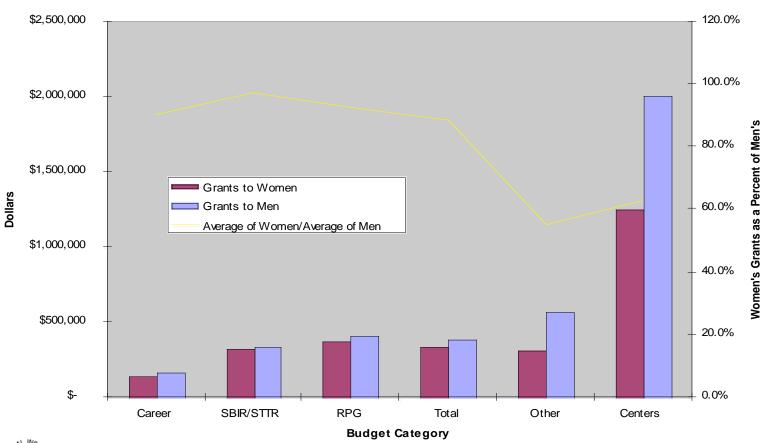


- Broken down by budget category, what proportion of awards went to women in FY 2006?
 - Across budget categories, women were Principal Investigators
 (PIs) on about 17% of Centers and SBIR/STTR grants, between
 25% and 26% of the RPGs, and other Research Grants, and on 39% of all career awards
 - Across budget categories, women Pls on grants comprise 11% of the total funding for Centers, 16% of the SBIR/STTR grants, 16% of the other Research Grants, 23% of the RPGs, and 36% of the career awards.
 - The average size of grants going to women compared to men varies across budget category from 55% on other Research Grants to 97% on SBIR/STTR awards.
 - For RPGs in FY 2006 the average size of grant with a female PI is
 92% of the size of a grant to a male.





Average Size of Grants to Women Compared to Men by Budget Category FY 2006







NIH Research Grants by Budget Category, FY 2006

		All Awards			Awards to Wom	nen	Awards to Men			
ACTIVITY	Number	Amount	Average	Number	Amount	Average	Number	Amount	Average	
Career	4,254	\$ 662,905,825	\$ 155,831	1,654	\$ 240,975,231	\$ 145,692	2,394	\$ 387,800,868	\$ 161,989	
SBIR/STTR	1,844	\$ 621,653,450	\$ 337,122	306	\$ 100,247,347	\$ 327,606	1,313	\$ 443,361,192	\$ 337,670	
RPG	36,814	\$14,852,789,984	\$ 403,455	9,118	\$ 3,454,500,482	\$ 378,866	26,640	\$10,955,776,724	\$ 411,253	
Total	42,912	\$16,137,349,259	\$ 376,057	11,078	\$ 3,795,723,060	\$ 342,636	30,347	\$11,786,938,784	\$ 388,405	
Other	2,397	\$ 1,220,194,738	\$ 509,051	602	\$ 189,790,499	\$ 315,267	1,624	\$ 933,339,815	\$ 574,717	
Centers	1,488	\$ 2,796,819,157	\$1,879,583	249	\$ 312,160,406	\$1,253,656	1,136	\$ 2,271,005,900	\$1,999,125	

FY 2006 data as of January 22, 2007

Source: IMPAC-II Pub files - Program awards_by_gender_050921_fy2006_rfm



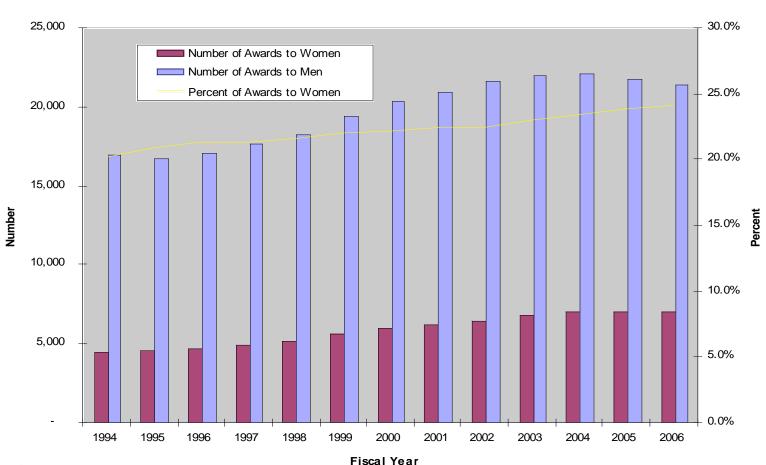


- How has the participation of women as Principal Investigators on NIH traditional research grants (R01s) changed over time?
 - Since 1994 the number of competing and non-competing R01 awards going to female PIs has increased from 4,459 to 7,046 or nearly 1.6 fold.
 - The total amount of those grants has increased 2.8 fold.
 - The proportion of R01s going to women has increased from 20% in 1994 to more than 24% in 2006
 - In FY 2006, the average size of an R01 with a female PI was \$367,326 in total costs and was about 2 percent larger than an R01 with a male PI
 - Since 1998, the success rate for female applicants on new (Type 1)
 R01 grants has been slightly higher than that for male applicants
 - Since 1998, the success rate for female applicants on renewal (Type 2) R01 grants has been on average 4% below that of male applicants



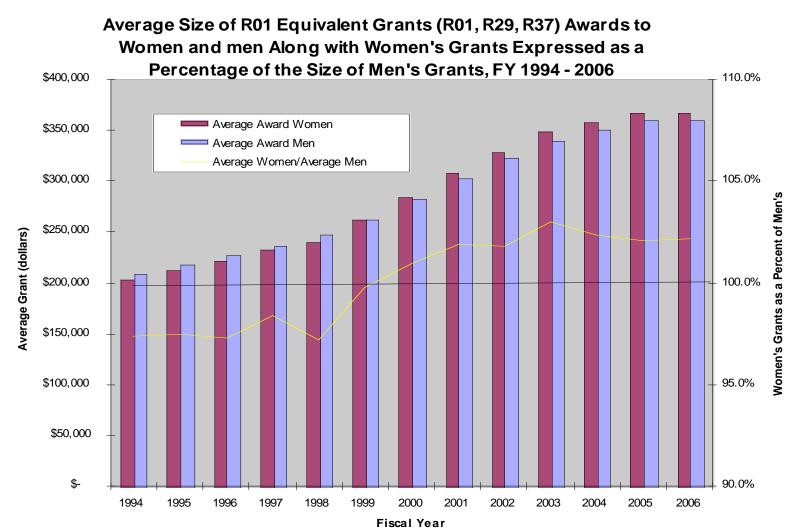


Number of R01 Equivalent Awards to Women and Men with Percentage of Awards to Women, FY 1994 - 2006













NIH Competing and Non-Competing R01 Equivalent Awards, FY 1994 - 2006

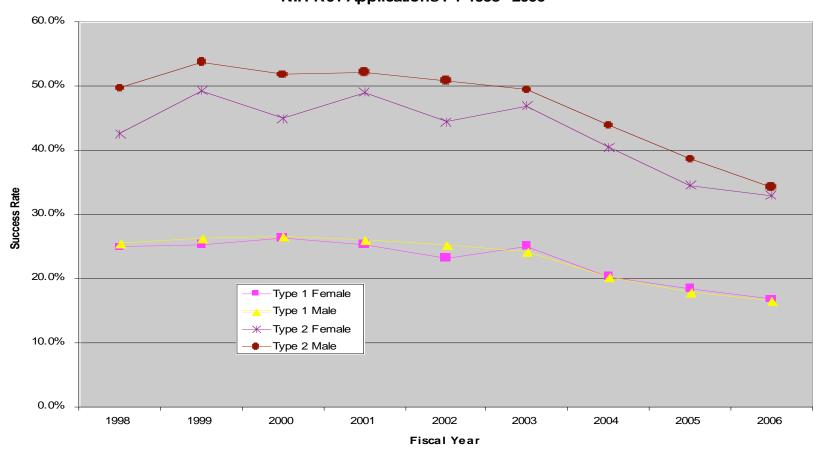
		All Awards			Awards to Women			Awards to Men			
FY	Number	Amount	Average	Number	Amount	Average	Number	Amount	Average		
1994	22,119	\$ 4,594,420,345	\$ 207,714	4,459	\$ 908,825,603	\$ 203,818	17.065	\$ 3,570,083,182	\$ 209,205		
1995	21,738	\$ 4,725,007,543	\$ 207,714	4,548	\$ 969,333,611	\$ 213,134	16,741	\$ 3,662,349,605	\$ 218,765		
1996	22,274	\$ 5,055,448,406	\$ 226,966	4,747	\$1,054,086,080	\$ 222,053	17,074	\$ 3,898,788,464	\$ 228,347		
1997	23,152	\$ 5,466,342,484	\$ 236,107	4,947	\$1,153,577,547	\$ 233,187	17,747	\$ 4,207,081,064	\$ 237,059		
1998	24,041	\$ 5,919,656,552	\$ 246,232	5,203	\$1,253,466,964	\$ 240,912	18,297	\$ 4,534,358,720	\$ 247,820		
1999	25,682	\$ 6,737,516,567	\$ 262,344	5,665	\$1,483,456,832	\$ 261,864	19,471	\$ 5,112,753,237	\$ 262,583		
2000	26,951	\$ 7,615,901,117	\$ 282,583	5,982	\$1,703,234,283	\$ 284,727	20,348	\$ 5,736,161,633	\$ 281,903		
2001	27,992	\$ 8,512,482,421	\$ 304,104	6,269	\$1,934,694,676	\$ 308,613	21,019	\$ 6,366,531,472	\$ 302,894		
2002	28,864	\$ 9,361,124,010	\$ 324,318	6,498	\$2,139,052,481	\$ 329,186	21,638	\$ 6,995,004,761	\$ 323,274		
2003	29,619	\$10,099,338,559	\$ 340,975	6,825	\$2,382,506,602	\$ 349,085	22,057	\$ 7,474,464,773	\$ 338,870		
2004	29,965	\$10,554,069,482	\$ 352,213	7,025	\$2,518,741,382	\$ 358,540	22,209	\$ 7,783,403,371	\$ 350,462		
2005	29,549	\$10,685,232,289	\$ 361,611	7,066	\$2,596,121,636	\$ 367,410	21,841	\$ 7,862,105,334	\$ 359,970		
2006	29,123	\$10,522,350,609	\$ 361,307	7,046	\$2,588,180,178	\$ 367,326	21,419	\$ 7,701,290,792	\$ 359,554		

Data from IMPAC-2





Success Rates of Male vs. Female Applicants on New (Type 1) and Continuing (Type 2) NIH R01 Applications FY 1998 - 2006







	Succes	ss Rate	on NIH	Compe	ting R0	1 Applicat	tic	ons by	Gender	of Princ	ipal Inv	estigato	r
			F1-	0			4						
				Applicants			4				pplicants		
	NIH New	(Type 1) Ap	plications	NIH Continu	Jing (Type 2	?) Applications	_	NIH New	(Type 1) Ap	plications	NIH Contini	uing (Type 2) Applications
FY	Booo	Augrala	Success	Booo	Augralo	Success		Booo	Augrala	Success	Booo	Augrala	Success
ГІ	FY Base	Awards	Rate	Base	Awards	Rate		Base	Awards	Rate	Base	Awards	Rate
1998	2,921	727	24.9%	993	423	42.6%	Т	9,729	2,472	25.4%	3,653	1,817	49.7%
1999	3,874	980	25.3%	1,046	516	49.3%	Т	11,835	3,126	26.4%	3,899	2,096	53.8%
2000	4,041	1066	26.4%	1,019	458	44.9%	T	12,062	3,213	26.6%	3,879	2,011	51.8%
2001	4,132	1046	25.3%	1,042	511	49.0%	T	11,998	3,118	26.0%	3,838	2,004	52.2%
2002	4,329	1006	23.2%	1,102	489	44.4%	T	12,133	3,062	25.2%	3,866	1,966	50.9%
2003	4,727	1187	25.1%	1,301	610	46.9%	T	13,550	3,267	24.1%	4,160	2,056	49.4%
2004	5,410	1099	20.3%	1,357	549	40.5%	1	15,195	3,057	20.1%	4,519	1,985	43.9%
2005	5,613	1036	18.5%	1,410	488	34.6%		15,572	2,798	18.0%	4,837	1,872	38.7%
2006	5,596	937	16.7%	1,485	489	32.9%		15,419	2,540	16.5%	4,991	1,712	34.3%



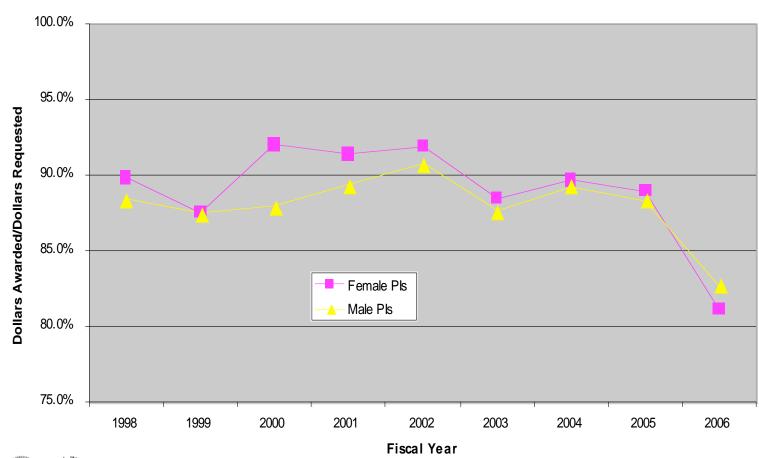


- How has the participation of women as Principal Investigators on NIH Research Project Grants (RPGs) and as reviewers changed over time?
 - During the period since FY 1998, the amount awarded compared to the amount requested on RPG applications has remained about the same for male and female applicants.
 - Over this same time period, women have requested between 83% and 96% of the amount requested by men.
 - Over the period from FY 1985 to FY 2003, men generally have experienced higher success rates than women on RPG grant applications. During the period from FY 2003 to FY 2006 success rates have been almost equivalent.
 - Over the period from FY 1980 to FY 2006 women have shown substantial gains in their share of all Research grant mechanisms including all career award, research project grants, SBIR/STTR awards and Research Centers.
 - The proportion of women on Center for Scientific Review (CSR) initial review panels has remained higher than their proportion on R01 applications and has increased over the years since FY 2000.



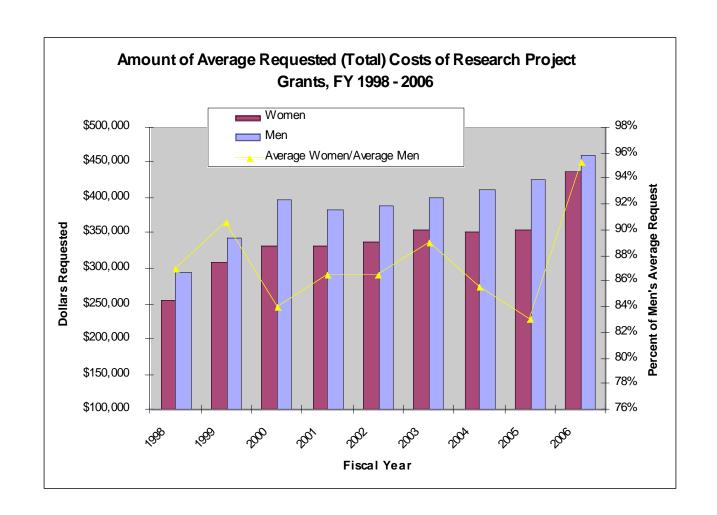


Amount of Competing Research Project Grant Awards as a Percentage of the Amount Requested, Women vs. Men FY 1998-2006













Amounts Requested Compared to Amounts Award for NIH Competing Research Project Grants by Gender of the Principal Investigator, FY 1998-2006

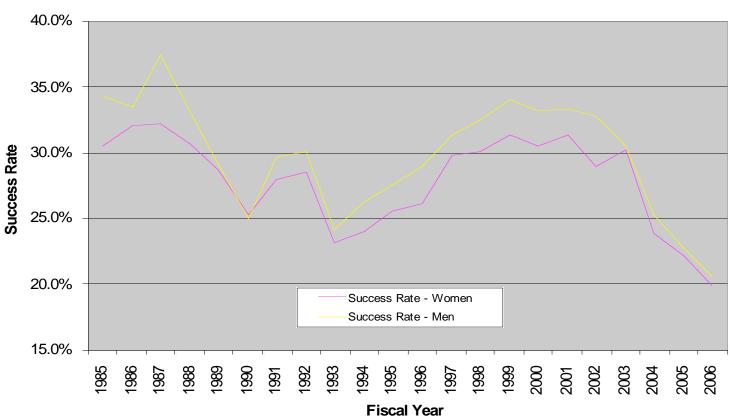
	Aw	ards to Female P	rincipal Investi	gators		Awards to Male Principal Investigators						
	Number	Paguastad	Awarded	Awarded /		Number	Requested	Awarded	Awarded /			
	Number	Requested	Awarueu	Requested		Number	Requesteu	Awarueu	Requested			
FY	Total (Direct and Indirect) Cost											
1998	1,810	\$ 463,307,934	\$415,990,419	89.8%		5,759	\$1,695,881,347	\$1,498,526,256	88.4%			
1999	2,060	\$ 641,095,917	\$561,420,818	87.6%		6,556	\$2,250,694,818	\$1,968,709,774	87.5%			
2000	2,108	\$ 703,507,310	\$647,100,807	92.0%		6,642	\$2,636,197,347	\$2,317,382,683	87.9%			
2001	2,253	\$ 748,021,360	\$683,487,035	91.4%		6,756	\$2,592,821,848	\$2,315,260,683	89.3%			
2002	2,220	\$ 750,171,536	\$689,362,908	91.9%		6,958	\$2,715,175,781	\$2,463,865,525	90.7%			
2003	2,712	\$ 964,430,768	\$853,638,581	88.5%		7,476	\$2,988,323,830	\$2,617,491,512	87.6%			
2004	2,571	\$ 907,273,643	\$813,526,706	89.7%		7,359	\$3,033,352,085	\$2,706,386,683	89.2%			
2005	2,556	\$ 908,319,052	\$807,980,850	89.0%		6,893	\$2,948,426,839	\$2,604,623,041	88.3%			
2006	2,354	\$1,030,200,769	\$836,382,462	81.2%		6,465	\$2,970,790,771	\$2,457,635,922	82.7%			

Source: IMPAC-II Publication files as of April 5, 2007 Program gend_070405_rfm





Success Rates for Women and Men on Competing RPG Applications FY 1985 - 2006







Success Rates for Women and Men on NIH Competing Research Project Grant **Applications, FY 1985 - 2006**

	Applica	tions from Wo	men	Applications from Men				
FY	Reviewed	Awarded	Success	Reviewed	Awarded	Success		
1985	3,174	970	30.6%	16,217	5,567	34.3%		
1986	3,291	1,053	32.0%	15,656	5,240	33.5%		
1987	3,413	1,101	32.3%	15,113	5,648	37.4%		
1988	3,770	1,155	30.6%	15,978	5,274	33.0%		
1989	3,847	1,105	28.7%	15,939	4,626	29.0%		
1990	4,051	1,024	25.3%	16,581	4,135	24.9%		
1991	4,078	1,140	28.0%	16,512	4,889	29.6%		
1992	4,364	1,244	28.5%	16,602	5,005	30.1%		
1993	5,207	1,207	23.2%	17,656	4,262	24.1%		
1994	5,741	1,380	24.0%	19,042	5,003	26.3%		
1995	5,680	1,453	25.6%	18,838	5,200	27.6%		
1996	5,455	1,425	26.1%	17,615	5,098	28.9%		
1997	5,649	1,684	29.8%	17,624	5,534	31.4%		
1998	5,411	1,628	30.1%	17,074	5,535	32.4%		
1999	5,970	1,870	31.3%	18,379	6,259	34.1%		
2000	6,366	1,940	30.5%	19,180	6,372	33.2%		
2001	6,806	2,129	31.3%	19,684	6,558	33.3%		
2002	7,365	2,128	28.9%	20,730	6,792	32.8%		
2003	8,697	2,625	30.2%	23,946	7,302	30.5%		
2004	10,603	2,529	23.9%	28,891	7,289	25.2%		
2005	11,377	2,528	22.2%	30,014	6,826	22.7%		
2006	11,638	2,332	20.0%	30,801	6,398	20.8%		

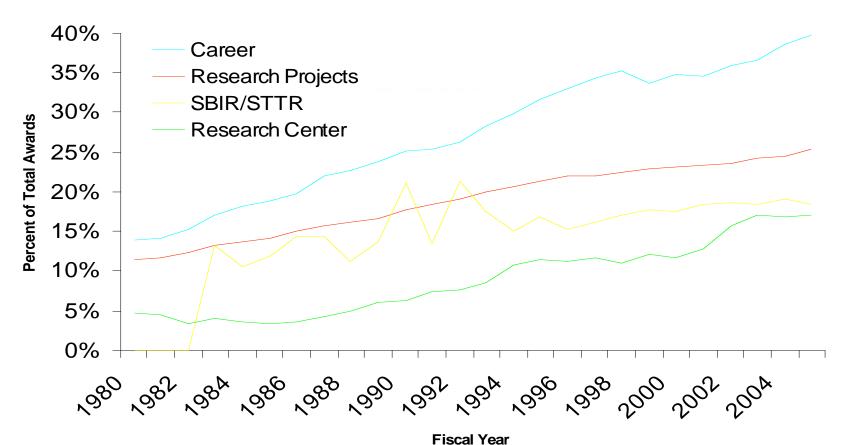
Source: Success rate file, CGAF2004 and IMPAC-II as of September 20, 2005

Program: SRF_Gender_050921_rfm
Excludes applications without coded Genders





Female Investigators as a Percent of Total Awards by Award Mechanism FY 1980-2005







Percentage of Women on Standing CSR Peer Review Panels Compared to the Percentage of Women as Applicants for NIH R01 Grants

