

# FINANCIAL REPORT OF BIOMEDICAL RESEARCH AND TRAINING IN NUTRITION, FY 2003

## THE LEADER IN FEDERALLY SUPPORTED NUTRITION RESEARCH AND TRAINING

In Fiscal Year 2003, the NIH continued to lead all Federal agencies in financial support of nutrition research and training, with a total of \$1.0 billion. This total represents the combined individual contributions of the 19 NIH institutes and four centers that supported biomedical

nutrition research and training. Actual obligations for FY 2003 biomedical nutrition research and training for all NIH institutes and centers (ICs) are shown in Table 1 as amounts and as percentages of their total obligation.

Leading the ICs in total dollars expended in support of nutrition research were NIDDK, NCI and NHLBI, collectively accounting for more than two-thirds of the total NIH nutrition related spending.

**Table 1. Actual Obligations, NIH Biomedical Nutrition Research and Training,  
as a Percentage of Total ICD Obligations, by NIH Component, FY 2003  
(in thousands of dollars)**

Institute / Center (IC)	Nutrition Research and Training*	Total IC Obligations**	Nutrition as Percentage of Total IC Obligations
NCI	228,797	4,595,476	5.0
NHLBI	193,795	2,793,681	6.9
NIDCR	9,547	371,630	2.6
NIDDK	231,671	1,712,959	13.5
NINDS	10,139	1,456,426	0.7
NIAID	24,608	3,606,789	0.7
NIGMS	2,843	1,846,917	0.2
NICHD	56,818	1,205,908	4.7
NEI	21,032	633,109	3.3
NIEHS	23,680	697,698	3.4
NIA	61,970	993,595	6.2
NIAMS	2,928	486,031	0.6
NIDCD	2,734	370,330	0.7
NIMH	18,945	1,341,014	1.4
NIDA	4,111	965,721	0.4
NIAAA	11,663	415,960	2.8
NINR	7,231	130,537	5.5
NHGRI	3,279	464,960	0.7
NIBIB	343	278,279	0.1
NCRR	42,913	1,138,820	3.8
NCCAM	53,301	113,405	47.0
NCMHD	7,116	185,674	3.8
FIC	2,767	63,425	4.4
OD <sup>++</sup>	13,111	266,161	4.9
<b>TOTAL<sup>+</sup></b>	<b>\$1,035,343</b>	<b>\$26,134,505</b>	<b>4.0</b>

\* Actual obligations. Source: Human Nutrition Research and Information Management (HNRIM) System database.

\*\* Obligations. Source: NIH Office of Program Planning and Evaluation.

+ Total excludes obligations for National Library of Medicine and buildings and facilities.

++ Office of the Director (OD) includes Office of Dietary Supplements and Office of Behavioral and Social Sciences Research.

Leading NIH components in terms of the percentage of total IC budget dedicated to nutrition research and training were NCCAM, NIDDK and NHLBI, with 47 percent, 14 percent and 7 percent, respectively, for FY 2003.

## TRENDS IN NUTRITION RESEARCH AND TRAINING, 1994-2003

NIH nutrition research and training dollars have increased steadily during the past decade, growing from \$401 million in FY 1994 to \$1.0 billion in FY 2003. Actual obligations for nutrition research and training by NIH component during the past 10 years are shown in Table 2. Overall, the trend in current dollars has been steadily upward for most ICs.

**Table 2. Actual Obligations for Nutrition Research and Training by NIH Component, Fiscal Years 1994-2003 (Thousands of Dollars)**

NIH Component	1994 <sup>a</sup>	1995	1996	1997 <sup>b</sup>	1998	1999 <sup>c</sup>	2000	2001	2002	2003 <sup>d</sup>
<b>Total</b>	<b>\$400,701</b>	<b>\$428,687</b>	<b>\$438,813</b>	<b>\$453,306</b>	<b>\$494,443</b>	<b>\$553,519</b>	<b>\$694,909</b>	<b>789,269</b>	<b>\$916,964</b>	<b>\$1,035,343</b>
NCI	104,939	112,781	116,567	121,739	119,829	113,223	171,491	184,535	204,425	228,797
NHLBI	70,545	73,466	75,306	88,943	118,886	124,233	130,491	146,592	184,367	193,795
NIDCR	4,164	6,408	6,087	8,225	6,755	9,109	9,261	10,671	10,148	9,547
NIDDK	70,049	75,980	93,322	98,673	105,026	130,115	151,007	182,613	203,741	231,671
NINDS	1,777	1,738	1,190	999	4,032	3,870	9,048	10,358	10,150	10,139
NIAID	6,763	7,963	7,873	10,973	12,355	13,907	16,115	17,631	16,806	24,608
NIGMS	2,169	2,503	2,628	2,265	2,120	2,088	2,854	2,326	2,340	2,843
NICHD	31,165	32,818	28,823	29,585	28,401	35,029	41,602	45,549	50,957	56,818
NEI	16,057	16,634	14,218	14,913	15,665	17,438	20,796	23,724	26,891	21,032
NIEHS	4,654	4,826	4,068	5,806	7,078	6,615	10,839	14,286	22,644	23,680
NIA	19,942	20,516	20,203	19,226	20,763	26,720	31,380	42,579	55,990	61,970
NIAMS	5,520	3,998	2,717	4,846	4,569	4,544	4,531	2,984	3,366	2,928
NIDCD	2,162	2,150	2,366	2,716	2,514	1,757	1,610	1,478	2,881	2,734
NIMH	7,760	8,446	7,481	7,158	7,363	7,450	11,782	15,153	18,941	18,945
NIDA	2,548	2,621	2,878	2,226	1,980	3,450	4,100	4,492	5,093	4,111
NIAAA	3,431	3,901	3,992	7,046	7,632	8,089	9,424	7,790	9,869	11,663
NINR	2,787	3,106	1,851	2,401	2,775	3,434	4,487	5,134	5,862	7,231
NHGRI	-	-	-	-	-	-	-	1,287	1,362	3,279
NIBIB	-	-	-	-	-	-	-	-	-	343
NCRR	21,995	22,130	21,626	25,446	26,345	31,759	34,431	35,032	37,479	42,913
NCCAM	-	-	-	-	-	10,305	28,985	34,394	42,369	53,301
NCMHD	-	-	-	-	-	-	-	-	-	7,116
FIC	89	166	97	120	354	382	676	663	1,282	2,767
OD	22,183	26,535	25,520	-	-	-	-	-	-	13,111

<sup>a</sup> In FY 1994 Office of the Director (OD) includes funding for the Women's Health Initiative.

<sup>b</sup> In FY 1997 Women's Health Initiative transferred to NHLBI.

<sup>c</sup> In FY 1999 includes funding for the National Center for Complimentary and Alternative Medicine.

<sup>d</sup> In FY 2003 Office of the Director (OD) includes Office of Dietary Supplements and Office of Behavioral and Social Sciences Research.

As shown in Table 3, total NIH expenditures for nutrition research and training have increased consistently since FY 1994 and have constituted approximately 4 percent of total NIH obligations during that time. This table also shows total NIH biomedical nutrition research and training support in constant, as well as current dollars. For example, nutrition research and training support showed a \$635 million, or 158 percent, increase between FY 1994 and FY 2003 in current (unadjusted) dollars. In constant dollars (i.e., adjusted for inflationary price increases), nutrition research and training support in FY 2003 represented an 87 percent increase over the FY 1994 level.

In FY 2002, the NIH led all Federal agencies in financial support of nutrition research and training with a total of \$917 million, as shown in Figure 1.

**Table 3. Actual Obligations, NIH Biomedical Nutrition Research and Training, in Current and Constant Dollars, and as a Percentage of Total NIH Obligations FY 1994-2003 (in thousands of dollars)**

Fiscal Year	Nutrition Research and Training, Current Dollars	Nutrition Research and Training, Constant Dollars*	Total NIH Obligations	Current Nutrition Dollars as a Percentage of Total NIH Obligations
1994	400,701	400,701	10,579,468	3.8
1995	428,687	414,335	10,901,647	3.9
1996	438,813	413,540	11,471,293	3.8
1997	453,306	412,886	11,979,278	3.8
1998	494,443	438,488	12,777,283	3.9
1999	553,519	473,401	14,710,791	3.8
2000	694,909	569,659	16,843,082	4.1
2001	789,269	620,903	20,068,232	3.9
2002	916,964	696,237	22,294,111	4.1
2003	1,035,343	751,197	26,134,505	4.0

\* Actual obligations. Source: Human Nutrition Research and Information Management (HNRIM) System.

\*\*Based on biomedical R&D price index, FY 1994 = 100 percent.

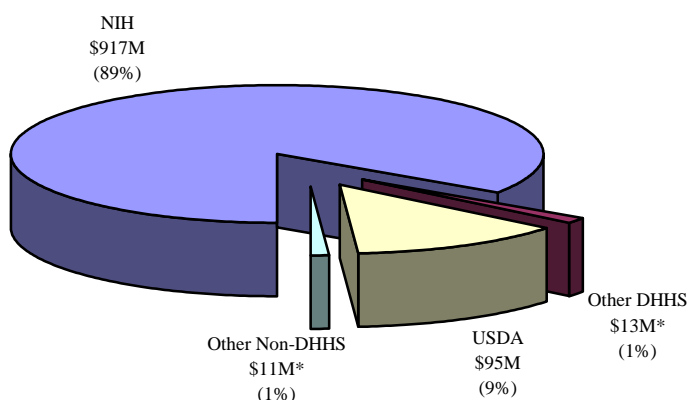
†Total excludes obligations for National Library of Medicine and Buildings and Facilities.

## EXPENDITURES BY HNRIM SYSTEM CATEGORY AND INTEREST AREA

The NIH nutrition research support in the HNRIM system classification categories and the number of grants or contracts funded in each category are shown in Table 4. The column labeled "actual obligations" represents the *nutrition* funding for projects in each classification category, not the funding for the classification category per se. For example, a study of

the effects of smoking and diet on coronary heart disease and obesity that was considered to be 60 percent nutrition-related and had a total budget of \$100,000 would contribute \$60,000 toward the actual obligations reported for the area "Cardiovascular Disease and Nutrition" as well as \$60,000 toward the actual obligations reported for the area "Obesity, Anorexia, and Appetite Control." As this example illustrates, a grant or contract may appear in more than one category.

**Figure 1. Federal Expenditures in Support of Human Nutrition Research and Training, FY 2002**



\* Estimate

Source: Human Nutrition Research and Information Management (HNRIM) System database

Thus, if all actual obligations in the 43 categories were summed, the sum would exceed the total nutrition expenditures for that fiscal year. The column labeled "percent of total" represents the nutrition funds expended in a given category in relation to total NIH obligations for nutrition research and training, which totaled \$1.0 billion for FY 2003.

Although NIH nutrition research encompasses all of the classification categories, the largest component is concentrated in the area of Research in the Biomedical and Behavioral Sciences (codes 1 - 25 and 35 - 37). Codes 51 through 56 represent NIH Special Interest Areas. The most frequently assigned nutrition classification codes include "Cancer and Nutrition," "Obesity, Anorexia, and Appetite Control," "Other Diseases and Nutrition," "Cardiovascular Disease and Nutrition" and "Lipids (Fats and Oils)."

### **Support by Extramural and Intramural Categories**

The NIH supports two broad categories of research: extramural and intramural. The extramural programs are responsible for approximately 80-85 percent of the total NIH

resources in the form of research grants or contracts. Through these programs, NIH makes awards of various kinds to institutions throughout the United States and the world. Extramural awards are based on a two-tiered peer-review assessment - one for scientific merit and one for program relevance.

Within the NIH itself, and accounting for approximately 10 percent of its budget, is the intramural program. Nearly all of the NIH institutes have an intramural component of laboratory and clinical research programs. More than 2,000 intramural research projects are in progress at all times, making the NIH the largest center for biomedical and behavioral research in the world. Boards of scientific counselors are responsible for assessing the quality and direction of the intramural program, and the NIH Office of the Director provides scientific and policy oversight.

The NIH relies on three major funding mechanisms as the administrative instruments for accomplishing its program goals through the efforts of scientists outside the NIH (i.e., extramurally): grants and cooperative agreements (financial assistance awards) and contracts (acquisition awards). Financial support by NIH of extramural nutrition research and training is provided through all three of these

major funding mechanisms. Support of extramural nutrition research utilizes research project grants, program project grants, center grants, contracts, and cooperative agreements.

All of these may include clinical trials; research resources support; reimbursement agreements; research career development awards; and new, academic, and teacher investigator awards. Extramural training in biomedical and behavioral nutrition research is supported through National Research Service Awards, with training grants awarded to institutions and fellowships awarded to individuals. The intramural nutrition program consists of research projects and training. The actual obligations in biomedical nutrition research and training by category of support for Fiscal Year 2003 are shown in Table 5.

Extramural projects comprised about 94 percent of nutrition related expenditures in Fiscal Year 2003 (\$977 million). Research grants continue to comprise the largest category of support, with \$668 million and 2,744 projects. Program Projects made up the second largest category during this period, with \$86 million and 132 projects. Contracts ranked third, with \$71 million and 145 projects. Centers comprised the fourth largest category of support, with \$66 million (189 projects). The intramural program represented 6 percent of expenditures for nutrition research and training during FY 2003, with funding of \$59 million (144 projects).

## **Nutrition Research Training**

The NIH supports training in biomedical and behavioral nutrition research in both the extramural and the intramural programs. Within the extramural program, two basic mechanisms are used for nutrition training support: institutional awards and individual awards. The institutional awards, commonly called “training grants,” are designed to enable institutions to make training awards to individuals selected by them for predoctoral and postdoctoral research training. In FY2003, NIH spent \$10.3 million on 99 training grants in nutrition. The predoctoral and postdoctoral individual National Research Service Awards, called “fellowships,” are awarded to provide pre- and postdoctoral research training to individuals to broaden their scientific background and extend their potential for research. Expenditures for fellowships in nutrition were \$3.2 million for 101 fellowships in FY 2003.

**Table 4. Actual Obligations, NIH Biomedical Nutrition Research and Training, by  
HNRIM Classification Category, FY 2003  
(in thousands of dollars)**

Nutrition Research Classification	Number of Grants and Contracts	Actual Obligations	Percent of Total
01 - Maternal Nutrition	205	58,478	6
02 - Infant and Child Nutrition (0-12 years)	355	93,442	9
03 - Adolescent Nutrition (13-18 years)	143	39,744	4
04 - Adult Nutrition (19-65 years)	223	89,325	9
05 - Nutrition of the Elderly (65+ years)	260	115,180	11
06 - Cardiovascular Disease and Nutrition	801	291,484	28
07 - Cancer and Nutrition	1056	302,053	29
08 - Other Diseases and Nutrition	863	267,871	26
09 - Trauma (Including Burns) and Nutrition	32	5,020	< 1
10 - Infection--Immunology and Nutrition	252	58,412	6
11 - Obesity, Anorexia, and Appetite Control	867	262,217	25
12 - Genetics and Nutrition	485	139,086	13
13 - Nutrition and Function	333	107,833	10
14 - Nutrient Interactions	250	63,310	6
15 - Other Conditions and Nutrition	216	53,482	5
16 - Nutritional Status R&D	161	57,802	6
17 - Carbohydrates	258	67,872	7
18 - Lipids (Fats and Oils)	655	227,099	22
19 - Alcohols	65	16,793	2
20 - Proteins and Amino Acids	206	54,356	5
21 - Vitamins	526	194,263	19
22 - Minerals and Essential Trace Elements	341	99,584	10
23 - Water and Electrolytes	116	30,893	3
24 - Fiber	15	11,986	1
25 - Other Nutrients In Food	49	15,369	1
26 - Food Composition R&D	18	3,939	< 1
27 - Bioavailability of Nutrients	24	8,744	< 1
28 - Effects of Technology on Foods and Diets	8	4,676	< 1
29 - Other Research in Food Sciences	9	2,264	< 1
30 - Food Consumption Survey R&D	13	7,192	< 1
31 - Dietary Practices, Food Consumption, & Determinants	360	114,746	11
32 - Studies of Methods for Informing & Educating the Public	34	6,912	< 1
33 - Other Research in Nutrition Education	16	6,002	< 1
34 - Effects of Government Policy & Socioeconomic Factors	37	8,472	< 1
35 - Parenteral, Enteral, and Elemental Nutrition	48	13,031	1
36 - Dietary Supplements: Nutrient Ingredients	509	166,445	16
37 - Dietary Supplements: Botanical & Other Non-nutrient Ingredients	399	116,572	11
51 - Prevention and Nutrition	588	223,832	22
52 - International Nutrition Research	110	17,810	2
53 - Epidemiological Nutrition Research	307	91,669	9
54 - Nutrition Education for Professionals	132	21,614	2
55 - Nutrition Education for the Public	70	17,487	2
56 - Clinical Trials of Nutrients/Nutrition	378	189,001	18

\* The actual obligations represent the *nutrition* funding for projects in each classification area, not the funding of the classification area per se. A grant or contract may be assigned to more than one of these areas. Thus, summing the expenditures by area will yield a value that exceeds the total expenditures and summing the percent of total will yield a value greater than 100 percent.

\*\* The total expenditure, in thousands of dollars, of the NIH nutrition program was \$1,035,343 in FY 2003.

**Table 5. Actual Obligations, NIH Biomedical Nutrition Research and Training,  
by Category of Support, FY 2003  
(in thousands of dollars)**

Funding Mechanism	Item	Breakdown		Total	
		Number	Cost	Number	Cost
<b>Extramural</b>					
Research Grants	Regular	2,456	543,285		
	Clinical Trials	288	124,453		
	Total			2,744	667,738
Program Projects	Regular	127	73,448		
	Clinical Trials	5	12,247		
	Total			132	85,695
Contracts	Regular	104	36,567		
	Clinical Trials	41	34,760		
	Total			145	71,327
Centers	Regular	179	60,732		
	Clinical Trials	10	5,747		
	Total			189	66,479
Training	Training Grants	99	10,317		
	Fellowships	101	3,231		
	Total			200	13,548
Research Resources Support				117	39,199
Career Development Awards				243	24,019
Reimbursement Agreements				24	8,753
Subtotal, Extramural				3,794	976,758
<b>Intramural</b>					
Projects				144	58,585
Training				0	
Subtotal, Intramural				144	58,585
<b>Total NIH Biomedical Nutrition Research &amp; Training</b>				<b>3,938</b>	<b>1,035,343</b>