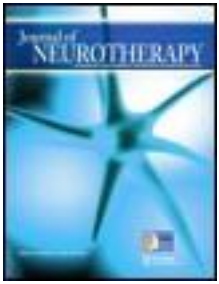

Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

What Became of "The Decade of the Brain"

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To cite this article: David A. Kaiser PhD & David A. Kaiser PhD (2001) What Became of "The Decade of the Brain", Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience, 4:4, 5-9, DOI: 10.1300/J184v04n04_02

To link to this article: http://dx.doi.org/10.1300/J184v04n04_02

What Became of "The Decade of the Brain"

The "Decade of the Brain" is over. In 1989, the House Joint Resolution 174 designated the decade beginning January 1, 1990 as the "Decade of the Brain," the DOB.[1] So let's take the time to review what took place. Has the DOB meant anything to our nation, our planet, or was it mostly hype?

Science magazine reported an "explosive growth" in the number of scientists identifying themselves as neuroscientists since 1990–about a thousand more each year. We've all witnessed the change in the mass media reporting on brain research. It is no longer unusual for a major news weekly to feature a cover article on the brain, mental health, or related scientific issue. Nor is the entertainment industry far behind. Of the 33 feature films with "brain" in the title, more than a third were produced during the last ten years.

As we all know, politicians love to pass resolutions; but few seem to follow their course and learn the impact of these actions. Did this proclamation, and subsequent funding alter the scientific landscape? Was the last decade of the millennium worthy of the title "Decade of the Brain?" When it came to the brain sciences, was the final decade of the 20th century really DOB–or DOA?

How much have brain sciences achieved during the DOB? An informal survey of biomedical research publications provides a clue. Medline includes 3.5 million biomedical publications during the last decade. Most of these papers have little or nothing to do with the brain, but focus on general health. In all, publications rose from 382,403 articles in 1990 to 482,348 articles in 1999, a 26% increase. An increase in biomedical publications does not necessarily reflect an increased focus on brain research. The increase could reflect numerous non-DOB trends in society such as more scientists at work, more research funding in other fields, more journals being published, or lower ink prices. To estimate whether and to what extent brain sciences advanced during the 1990s, a survey

of Medline was performed, with a sample of medical research topics compared against a sample of neuroscience and mental health keywords. Table 1 represents what I found:

Granted, this survey is crude, but it is unbiased. Terms were chosen randomly from lists. Notably, the small medical research group averaged out to the exact same growth rate of all publications. Nevertheless,

TABLE 1. Number of Publications Including Each Keyword in the Title or Abstract, Which Appeared in Medline for Years 1990 and 1999, and Percent Increase Since 1990.

A. Neuroscience Research

	1990	1999	Percent Increase
Hippocampus	1431	2242	57
Amygdala	360	653	81
Frontal lobe	160	347	118
Neuron	1181	1748	48
GABA	982	1406	43

Average Percent Increase: 69

B. Mental Health Research

	1990	1999	Percent Increase
ADHD	139	451	224
Anxiety	1530	2315	51
Depression	3638	4827	33
PTSD	78	335	329
Schizophrenia	940	1840	96

Average Percent Increase: 147

C. Medical Research

	1990	1999	Percent Increase
Cystic fibrosis	671	914	36
Lung cancer	1341	2004	49
Ovarian cancer	467	843	81
Platelets	1935	1584	−18
Tachycardia	1271	1040	−18

Average Percent Increase: 26

in terms of growth, neuroscience and mental health research drew relatively many more eyes and hearts during the DOB than our "control" science group. So the 1990s do appear to hold up as the Decade of the Brain . . . perhaps the first of many.

A further look into publications for mental health and neurological conditions during the final decade of the second millennium was also revealing as shown in Table 2.

Mood and anxiety disorders witnessed the largest increase in research. Brain injury research also increased substantially. In terms of the absolute number of publications, depression remains the bane of the Western world.

As shown in Table 3, research in alcoholism actually declined during the Decade of the Brain. Was the 1990s specifically the Decade of Brain Imaging, or is that title to be earned by this decade?

Although EEG papers outnumbered all other brain-imaging techniques, this lead is not likely to be maintained in upcoming years (see Table 4). EEG research approximately matched the overall biomedical

TABLE 2. Number of Publications Including Disorder Keyword in the Title or Abstract, Which Appeared in Medline for Years 1990 and 1999, and Percent Increase Since 1990.

	1990	1999	Percent Increase
ADHD	196	588	200
Anorexia	476	536	13
Anxiety	1530	2315	51
Autism	113	257	127
Bipolar Disorder	54	320	493
Chronic Fatigue (CFS)	131	337	157
Conduct Disorder	46	76	65
Depression	3638	4827	33
Epilepsy	999	1856	86
Fibromyalgia	71	176	148
Learning Disabilities	191	255	34
OCD	189	328	74
PMS	163	150	−8
PTSD	90	361	301
Schizophrenia	940	1840	96
Sleep Disorder	170	300	76
Traumatic Brain Injury	227	790	248
Tourette's Syndrome	77	93	21

TABLE 3. Number of Publications Including Each Addiction Keyword in the Title or Abstract, Which Appeared in Medline for Years 1990 and 1999, and Percent Increase Since 1990.

	1990	1999	Percent Increase
Addiction	306	480	57
Alcoholism	593	572	−4
Cocaine	726	924	27
Marijuana	136	184	35

TABLE 4. Number of Publications Including Each Neuroimaging Keyword in the Title or Abstract, Which Appeared in Medline for Years 1990 and 1999, and Percent Increase Since 1990.

	1990	1999	Percent Increase
Electroencephalography (EEG)	1200	1491	24
Functional Magnetic Resonance Imaging (fMRI)	58	621	971
Positron Emission Tomography (PET)	389	961	147
Single-Photon Emission Computed Tomography (SPECT)	198	305	54

TABLE 5. Number of Publications Including Each Alternative Medicine or Treatment Keyword in the Title or Abstract, Which Appeared in Medline for Years 1990 and 1999, and Percent Increase Since 1990.

	1990	1999	Percent Increase
Acupuncture	204	241	18
Alternative medicine	25	188	652
Biofeedback	111	90	−19
Chiropractic	59	104	76
Homeopathy	15	75	400
Hypnotherapy	119	121	2
St. John's Wort	6	70	1067
Placebo	3205	4390	37
Prozac	181	343	90
Psychotherapy	461	449	−3
Ritalin	48	110	129

publication growth (26%) so there appears to be no unusual amount of new interest in this field–at least for the moment.

Publications of most alternative medicine techniques accelerated during the past decade; however, biofeedback was not one of them (see Table 5). Biofeedback was one of the few research topics that declined in publications. But all in all, I think we can all agree, the past decade was a very good one for brain sciences and the future looks even brighter.

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NOTE

1. The House Joint Resolution 174 is available in its entirety at *http://libertyzone.com/LEZ-BrainDecadeHouse.html*