dered control is similar to that originally formulated by Bleuler to describe the disintegration of psychic processes in schizophrenia that renders them "incapable of holding the train of thought in the proper channel" (*20*).

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7. If four consecutive misses or false alarms occurred, recording was interrupted to reinforce the subject for rapid or accurate detections. Rest periods occurred every 4 minutes within and between sessions with a break in the middle. Before the experiment, subjects were practiced at the different experimental rates with the tones presented to only one ear, then to both ears, and then in the divided-attention task, which they all found extremely difficult.
8. R. L. Spitzer, J. Endicott, E. Robins, *Research Diagnostic Criteria (RDC) for a Selected Group of Functional Disorders* (Biometrics Research–New York State Psychiatric Institute, New York, 1975). According to RDC, the diagnosis of six patients was acute schizophrenia. Statistical comparisons showed no difference between acutely and nonacutely ill subjects, except that the former were treated with a higher medication dosage.
9. D. Bannister, *Br. J. Soc. Clin. Psychol.* **14**, 169 (1975).
10. The system bandpass was 0.1 to 300 Hz. The 900-msec sweep did not average responses within 900 msec of the beginning of a previous sweep. Trials contaminated by eye movement or muscle artifact were rejected before being averaged.
11. Details of the analyses of variance and F ratios are available on request. Because of missing values in the patients' group for P3 ($N = 17$) and for behavioral measures ($N = 18$), but not in the normal groups ($N = 20$), we used the least-squares solution for groups of unequal N available in the program BMD P2V [W. J. Dixon and M. B. Brown, *BMDP* (Univ. of California Press, Berkeley, 1977); R. E. Kirk, *Experimental Design* (Brooks & Coles, Belmont, 1968)] and the Scheffé post hoc procedures, which are robust to deviations of analyses of variance postulates [V. Keith, *Design and Analysis in Experimentation* (Univ. of Ottawa Press, Ottawa, 1971)]. For the significant interaction effects, simple main effects were tested according to Kirk, taking unequal N's into account and pooling the different error terms.
12. The N1 amplitude in the low-dosage group (3.57 ± 1.85) was significantly larger than that in the high-dosage group (2.62 ± 1.69) [F $(1, 18) = 10.43$, $P < .005$].
13. The analysis of covariance (BMD P2V) was performed on measures of the 900-msec tracing of the 15 patients being treated uniquely with fluphenazine decanoate and the 20 normal subjects. (Five patients had been treated with an additional phenothiazine, chlorpromazine, in the preceding month.) Dosage was measured as the weekly average per kilogram of body weight [W. Quan and R. J. Carlson, *Ann. R. Coll. Phys. Surg. Can.* **12**, 80 (1979)].
14. Subject-group differences remained significant on all measures except on N1 absolute amplitude. The dosage covariate mean and standard deviation were 9.5 ± 8.1 for the schizophrenic groups and 0 for the normals. For N1, both rate and attention effects were significant [respectively, $F(1, 33) = 37.1$, $P < .001$; $F(2, 66) = 15.2$, $P < .001$). In the fast-rate condition, the normal and schizophrenic covariate adjusted means were, respectively, 5.7 and 5.2 for the focused attention condition, 4.6 and 4.7 for the ignored condition, 5.5 and 4.8 for the divided condition. In the slow-rate condition, they were 8.4 and 6.9 for the focused condition, 6.4 and 6.4 for the ignored condition, and 7.7 and 5.6 for the divided condition. There are other reports of a decreased N1 amplitude with phenothiazine medication [B. Saletu, T. M. Itil, M. Saletu, *Am. J. Psychiatry* **128**, 336 (1971); M. S. Buchsbaum, *Schizophr. Bull.* **3**, 105 (1977)]. It could be argued that our analysis of covariance might have removed a schizophrenia-related N1 amplitude effect confounded with the medication covariate. It does not seem to be the case since the behavioral measures most sensitive to the schizophrenic disorder were not related to dosage, and since dosage was not correlated with the two scores (intensity, $r = .08$; consistency, $r = -.19$) of the thought-disorder test. These data indicate that dosage does not reflect a complete confounding of schizophrenia effects with medication effects and that the medication-related effect on N1 cannot be attributed to severity of the disorder studied in this experiment.
15. Our results for the normal subjects are slightly different from those reported by V. L. Schwent, S. A. Hillyard, and R. Galambos [*Electroencephalogr. Clin. Neurophysiol.* **40**, 604 (1976)]. They showed that the attention-related changes in N1 amplitude decreased at slower stimulation rates as the subject became less forced to exclude one channel from processing. Our procedure differed from theirs in that the signal frequency was the same in both ears. Thus, it was still advantageous to attend selectively to one channel even at the slower rate. R. F. Hink, S. T. Van Voorhis, S. A. Hillyard, and T. S. Smith [*Neuropsychologia* **15**, 597 (1977)] showed that when attention was divided between channels, the N1 amplitude was intermediate between the amplitude of the response to stimuli attended under the focus instructions and that to ignored stimuli. Our results in normal subjects showed that the N1 amplitude in the divided condition was equal to or greater than that in the focus condition. Our subjects reported that the divided-attention task was demanding, and they probably allocated more effort to its stimulus processing. The schizophrenics performed poorly during divided attention and had small N1 amplitudes.
16. The decreased P3 amplitude at the faster rates of stimulus presentation and for the divided-attention task is explainable on the basis of the temporal probability of the detected signal [P. F. Fitzgerald and T. W. Picton, *Can. J. Psychol.* **35**, 188 (1981)].
17. The main effects of subject group, stimulus rate, and attention instruction were all significant at $P < .01$.
18. D. S. Ruchkin and S. Sutton, in *Multidisciplinary Perspectives in Event-Related Brain Potentials Research*, D. Otto, Ed. (Environmental Protection Agency, Washington, D.C., 1978).
19. There is some controversy in the literature as to whether the attention-related N1 modulation represents an enhancement of the N1 component or the superimposition of another slower negative wave peaking at 200 to 250 msec [S. A. Hillyard, *Can. J. Psychol.* **35**, 159 (1981)]. This controversy does not detract from the fact that the N1 modulation indexes the selective processing of attended stimuli and is earlier than and distinct from P3 attention modulation. However, this is why we took control amplitude measures at 50-msec intervals in all conditions to assess the effects of possible slow base-line shifts. Our measures taken at 200 and 250 msec do not demonstrate the "attention-instruction by rate" interactions observed on N1 measures (peak, 125 msec), and therefore disconfirm the role of a slow negative wave. Regarding P3, there was no indication of any effect of an overlapping slower positivity in the two groups. Therefore, our N1 and P3 results do not seem to be due to such base-line shifts.
20. E. P. Bleuler, *Textbook of Psychiatry*, A. A. Brill, Transl. [Dover, New York, 1951 (originally 1924)], p. 337. In our experience, nonschizophrenic psychotic and depressed patients (J. Baribeau-Braun and N. Lesèvre, *Adv. Biol. Psychiatry*, in press) do not show the same P3 abnormalities that we found in schizophrenic patients, and we therefore believe that our results are more descriptive of schizophrenia than of psychosis in general. We have previously proposed [T. W. Picton, K. B. Campbell, J. Baribeau-Braun, G. B. Proulx, in *Attention and Performance*, J. Requin, Ed., (Erlbaum, Hillsdale, N.J., 1978), vol. 7, p. 429] that the frontal lobe may be the location for the cerebral processes controlling both stimulus-set and response-set attention. A frontal lobe disorder would be compatible with findings in cerebral blood flow, neuropsychological, and dopamine studies in schizophrenia.
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Shift Work Among Dual-Earner Couples with Children

Abstract. *In a 1980 sample of U.S. nonfarm households with children and with both spouses employed full time, one-third of the couples included at least one spouse who worked other than a regular day shift. In about one-tenth of the couples the spouses worked entirely different shifts with no overlap in hours. These findings are linked to an earlier study which showed a high prevalence of child care by employed fathers whose wives were employed in certain occupations.*

A decade ago, the employment of women was called "one of America's best-kept national secrets" (*1*). By now it is more widely recognized that women are a major component of the U.S. labor force; as of 1981 they constituted over 43 percent (*2*). The most rapidly growing segment of the labor force is married women. Hence there has been a rise in the prevalence of "dual-earner" families (both spouses employed); by 1981, they made up 52 percent of all married-couple families (with and without children). Couples in which the husband was the only earning spouse constituted 30 percent; in the remaining 18 percent the wife was the only earning spouse or neither spouse was an earner (*2*).

Over half the dual-earner couples have children. An apparently unnoticed phenomenon of these couples is the high prevalence of "shift workers"—individuals who work on other than a regular day shift. In more than one-third of the couples with children in which both spouses work full time, at least one spouse is on shift work. This widespread phenomenon, which we shall document below, has not been previously observed because of the individual rather than couple perspective that generally has been given to the analysis of shift workers (3).

We know from Current Population Survey (CPS) data that in 1980 about one-sixth of the full-time nonfarm wage and salary earners in the United States, or about 10 million people, were shift workers (on evening, night, or miscellaneous shifts) (4). Shift workers are disproportionately young, single, male, black, and primarily engaged in service industries (5). Still, there are many shift workers who are not so typified. For example, in 1980, 31 percent of shift workers were women. Also, 68 percent of male shift workers and 46 percent of female shift workers were married (4). The marital status of individuals was specified in the published report (4), but spouses were not identified; this precluded an estimate of the prevalence of shift work among couples.

Our analysis is based on data from the May 1980 CPS relating to the hours at which wage and salary earners began and ended work on their principal jobs most days of the week preceding the survey (7). We selected from the CPS sample of approximately 55,000 households all nonfarm married couples with wives aged 18 to 44 and with children under 14 years of age, in which both spouses were usually employed full time (35 hours or more) and had worked full time on their principal jobs during the reference week (6). We excluded self-employed spouses because they were not asked about their hours. The resulting sample, unweighted, consists of 2559 couples and represents about 3.3 million couples.

Our basic definition of shift work is the one used by the Bureau of Labor Statistics (BLS) (4, 5):

Day shift: full-time schedule (35 hours or more per week) in which at least half the hours worked fall between 8 a.m. and 4 p.m.

Evening shift: full-time schedule in which at least half the hours worked fall between 4 p.m. and midnight.

Night shift: full-time schedule in which at least half the hours worked fall between midnight and 8 a.m.

Miscellaneous shift: full-time schedule of less than 6 or more than 12 hours per day.

If a worker's hours fit into both day and evening categories, or both evening and night, the worker is classified in the first of the two categories. If in both night and day categories, however, the worker is counted on the day shift. This is a broad definition of day shift, permitting individuals who work from 4 a.m. to 12 noon to be classified as day workers, as well as individuals who work from 12 noon to 8 p.m. Those are, however, highly uncommon work times (8).

An alternative definition has been to consider full-time work beginning at 7, 8, or 9 a.m. as day work and work that begins at other times as shift work (9). This leads to higher estimates of the prevalence of shift workers. We modify this definition further to include in the day shift work that begins at 10 a.m., a common starting time for retail jobs.

We also refine the data by distinguishing rotating workers who were on a daytime schedule in the reference week from regular day workers. (Rotators are those who regularly change shifts, such as 1 week on the day shift and the next week on the evening or night shift.) Finally, we propose a new approach for considering couple work schedules: examining the number of hours of spouse overlap in their full-time principal jobs.

In the reference week of May 1980, using the BLS definition of shifts and referring only to the principal job, we find that 85.5 percent of wives and 76.2 percent of husbands in dual-earner couples worked a nonrotating day shift; or, reciprocally, 14.5 percent of wives and 23.8 percent of husbands did not. These are percentages for individual spouses.

A couple perspective is more revealing of family dynamics. We see in Table 1 that in only 66.1 percent of couples do both spouses work a nonrotating day shift. In other words, in about one-third of the couples one or both spouses do not regularly work a day shift. The most common pattern for these couples is husband on an evening shift and wife on a nonrotating day shift. Husbands are more likely to be on rotating and miscellaneous shifts than are wives. Wives who do not work a day shift are most likely to work an evening shift and their husbands a nonrotating day shift.

Table 1. Couples' work shift patterns: distribution (percent) of U.S. nonfarm couples in which both spouses are employed full time (at least 35 hours a week on principal job), the wife is 18 to 44 years old, and there are children less than 14 years old. Shift definitions are those of the Bureau of Labor Statistics (see text) and refer to full-time principal job. Couples in which one or both spouses are self-employed are excluded. *N* (number of couples) is 2559 unweighted; the percentages are based on weighted *N*'s. [Data are for one reference week, from the May 1980 Current Population Survey (4)]

Wife's shift	Husband's shift						Total*
	Day, nonrotating	Day, rotating	Evening	Night	Miscellaneous		
					< 6 hour/day	> 12 hour/day	
Day, nonrotating	66.1	4.3	7.2	3.9	.4	3.7	85.5
Day, rotating	2.3	.1	.3	.3	.0	.0	3.0
Evening	4.0	.5	.9	.3	.0	.3	6.0
Night	1.9	.1	.4	.3	.0	.1	2.8
Miscellaneous							
< 6 hour/day	.2	.0	.0	.0	.0	.0	.2
> 12 hour/day	1.8	.2	.0	.0	.0	.5	2.5
Total*	76.2	5.2	8.8	4.8	.4	4.6	100.0

*Percentages may not add to subtotals because of rounding.

The second shift-work definition, based on whether or not work began at 7, 8, or 9 a.m. during the reference week, produces a higher prevalence of nonregular work schedules among couples than does the BLS definition. Among wives, 18.1 percent did not regularly begin work at those hours; among husbands, 28.0 percent did not. Only 60.8 percent of the sample are couples in which both spouses regularly began work at 7, 8, or 9 a.m.; in 39.2 percent at least one spouse had an atypical starting time or was a rotator. Adding 10 a.m. to those starting times decreases the figure only slightly, to 37.8 percent.

These figures relate to the full-time principal job only, and data on hours worked are not available for additional jobs. We do know, however, the prevalence of "moonlighters" in our sample: 6.8 percent of all husbands on nonrotating day shifts as defined by BLS (6.8 percent of husbands on all shifts) and 2.3 percent of all wives on nonrotating day shifts (2.6 percent of wives on all shifts) had additional jobs in the reference week. Of the couples on nonrotating day shifts, 8.8 percent include a spouse who had another paid job (wage and salary or self-employed) in the reference week.

Is shift work more characteristic of the couples whose youngest child is not yet of school age or of the couples who have

Table 2. Hours of overlap in spouses' employment: distribution (percent) of U.S. nonfarm couples in which both spouses are employed full time (at least 35 hours a week on principal job), the wife is 18 to 44 years old, and the youngest child is under 14, under 5, and 5 to 13 years of age. All couples and couples not on rotating shifts. (Couples in which one or both spouses are self-employed are excluded.) N's shown are unweighted; percentages are based on weighted N's. [Data are for one reference week, from the May 1980 Current Population Survey (4)]

Number of overlapping hours per day on principal job	All couples, with youngest child age (years)			Couples not on rotating shifts, with youngest child age (years)		
	Under 14	Under 5	5 to 13	Under 14	Under 5	5 to 13
0	10.6	12.0	9.5	8.8	9.4	8.4
1 or 2	6.3	5.7	6.7	5.2	4.4	5.7
3 to 6	9.4	8.7	10.1	8.7	8.4	8.9
7	16.5	17.1	15.9	16.4	17.7	15.5
8	33.7	32.4	34.8	35.2	33.5	36.4
9	21.0	21.8	20.4	23.1	24.1	22.3
10 or more	2.5	2.3	2.6	2.6	2.5	2.8
Total*	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(2559)	(1109)	(1450)	(2228)	(961)	(1267)

*Percentages may not total 100.0 because of rounding.

only school-aged children? Suggestive of a higher prevalence among those with very young children is the fact that couples with young children tend to be young themselves, and shift work is most prevalent among the young. Also, couples with young children generally have lower incomes than those with older children, and to the extent that shift work draws premium pay, they may disproportionately respond to that incentive. On the other hand, couples whose youngest child is of school age may have fewer complications and lower costs in arranging for child care while they work. For example, their other children are more likely to be old enough to help with child care. In any case, we found that the prevalence of shift work (BLS definition) is almost the same in the two groups of parents—33.1 percent among couples whose youngest child is less than 5 years old and 34.5 percent among couples whose youngest child is school-aged.

The high prevalence of shift work among couples with children leads us to ask in how many of them the parents have different work schedules with little overlap in hours. Such differences reduce the time in the evening or night that both parents can be with the children but maximize the time that at least one parent can be present. We have derived from the CPS data the number of hours of spouse overlap in employment. Again, this refers to the principal jobs only and, accordingly, leads to a conservative estimate of work time away from home. It is striking to find (Table 2) that one-tenth of these full-time dual-earner couples had no overlap whatsoever in their hours of employment in the reference week. Considering only couples with nonrotating schedules for both spouses, we find this reduces to 8.8 percent—still quite high. An additional 6.3 percent of all couples (5.2 percent of those on nonrotating shifts) had only 1 or 2 hours of employment overlap. This overlap measure does not take into account the time consumed in commuting to and from work, so again it overstates the time spouses have left to be at home together. Thus, we conclude that a substantial minority of children of couples who are employed full time spend their evenings and nighttimes with only one parent. Again, there is little difference between couples whose youngest child is less than 5 years old and those whose youngest is aged 5 to 13.

For some couples differing shifts may be a way of sharing child care. Indeed, the present study emanated from earlier findings from the June 1977 CPS that suggested this was the case (*10*). Those findings were based on a subsample of employed married women aged 18 to 44 with employed husbands and with children less than 5 years old. A very high percentage of employed husbands of women in certain occupations were the primary caretakers of the young children; the wives were employed as registered and practical nurses, salesworkers, waitresses, and "other clerk," a diffuse grouping that includes telephone operators. These are occupations that disproportionately entail shift work. Between 35 and 43 percent of the fathers whose wives were working part time in these occupations were the principal caretakers. Over 30 percent of fathers whose wives were full-time waitresses and practical nurses were the principal caretakers. Data on fathers' detailed occupations were not available, but a similarly high prevalence of mother care may be characteristic of dual-earner couples in which husbands are in shift-work occupations. That differing shifts are a common mode of child care among dual-earner couples was suggested by Morgan (*11*) in his analysis of the 1979 Survey of Income Dynamics, although data were not presented on the hours of employment.

The child care issue is but one illustration of the fruitfulness of viewing shift work from a couple perspective. That issue raises many research questions: What are the motivations for shift work among couples with children? What is the quality of child care in shift-work households? To what extent do the parent caretakers sleep during the children's waking hours, or perhaps spend more daytime with their children than they otherwise would? Other questions may be raised concerning marital life: What are the quality and stability of marriages among shift-work couples compared with others? What is the distinctive effect of shift work on the division of labor within the home and on marital power? Is the effect of female shift work on family life different from the effect of male shift work? The answers to these questions are increasingly important, given the growing prevalence of dual-earner couples in our society.

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3. An exception is the work of Staines and Pleck, which analyzes couple work schedules but defines as shift workers spouses employed part time as well as full time who do not begin work between 3:30 a.m. and 11:59 a.m. (G. L. Staines and J. H. Pleck, final report for the Administration of Children, Youth and Families, Department of Health and Human Services, Washington, D.C., 1982).
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5. J. N. Hedges and E. S. Sekscenski, *Mon. Labor Rev.* **102** (No. 2), 14 (1979).
6. The percentage of all employed married women (spouse present) who have children under 14 in the household and work full time was 63.3 in 1980; for those meeting our sample characteristics it was also 63.3 percent. Employed women

aged 18 to 44 with children under 14 years of age constitute 92.2 percent of all employed women with such children.
7. These data do not indicate which days of the week each spouse works. All spouses, however, are full-time workers, so we would expect considerable overlap in days worked.
8. In our sample, there are no couples who both work the day shift according to the BLS definition and have no overlap in employment hours. Almost all (99.2 percent) have 5 or more hours of overlap.
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12. We gratefully acknowledge the assistance of Barbara Bergmann and Jeffery Evans with computer programming and of Susan Cunningham with the manuscript preparation.

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Barbiturate-Enhanced Detection of Brain Lesions by Carbon-14–Labeled 2-Deoxyglucose Autoradiography

Abstract. *Cerebral glucose metabolism in rats was examined 1 week after the production by ibotenic acid of unilateral striatal lesions. The incorporation of carbon-14–labeled deoxyglucose decreased within the lesion but much less than that of carbon-14–labeled glucose. Barbiturate anesthesia caused a reversal of the asymmetric striatal deoxyglucose labeling, such that the lesioned striatum retained more tracer than the contralateral side. The combined use of barbiturates and radiolabeled deoxyglucose may enhance the identification of recent brain infarction in experimental animals and in man.*

The development of the labeled 2-deoxy-D-glucose (2-DG) technique for measurement of cerebral glucose utilization has made it possible to investigate local metabolic rates under a wide variety of experimental conditions (*1*). The method is based on the measurement of accumulated 2-DG-6-phosphate (2-DGP) in the brain after intravenous injection of 2-DG. The glucose analog 2-DG competes for both the uptake and phosphorylation of glucose in the brain. Unlike glucose 6-phosphate, however, 2-DGP is not readily metabolized and remains trapped intracellularly. A model developed by Sokoloff *et al.* (*2*) makes it possible to determine cerebral glucose metabolic rates, provided that the time courses of plasma glucose and 2-DG concentrations as well as the accumulated tissue 2-DGP are measured.

With the advent of positron emission tomography, it has become possible to apply the 2-DG methodology to the human brain with the use of [^{18}F]2-deoxy-2-fluoro-D-glucose or [^{11}C]2-DG as tracers (*3–5*). Interest has focused on glucose metabolism in pathologic brain tissue, but for such tissue some of the assumptions necessary for quantitation cannot be readily verified (*3, 4*). We have therefore examined the use of [^{14}C]2-DG to determine the rate of glucose metabolism in lesioned rat brain. The ibotenic acid lesion is particularly attractive for this purpose since the toxin causes a marked loss of neurons and induces a glial reaction but does not damage local microvessels (*6*). Thus large areas of abnormal brain tissue retain the capacity for the uptake of tracers from blood. In addition, striatal lesions produced by ibotenic acid (*6*) or the related neurotoxin kainic acid (*7*) have been proposed as animal models for Huntington's disease. Such lesions exhibit reduced 2-DG uptake, which is assumed to reflect decreased glucose utilization (*8, 9*), although interpretation must be guarded in the absence of further information regarding the validity of the 2-DG method in the lesioned brain (*10*).

Unilateral striatal ibotenate lesions were produced in male Sprague-Dawley rats weighing between 180 and 200 g. The animals were anesthetized with diethyl ether and mounted in a stereotaxic frame with reference planes as described by König and Klippel (*11*). Ibotenic acid (20 μg in 1 μl of phosphate-buffered saline, *p*H 7.4) was infused through a 30-gauge cannula over 8 minutes at the following coordinates: 1.0 mm anterior to bregma, 2.6 mm lateral to the midline, and 5.5 mm below the cortical surface. The cannula was left in place for an additional 2 minutes to reduce the reflux of ibotenate up the cannula track. During the first 24 hours after the administration of ibotenate, the animals were generally hypoactive although episodes of seizure-like activity, consisting of chewing and facial clonus, progressing to forelimb clonus, rearing, and truncal torsions, were observed. Although bilateral manifestations were noted, the convulsions appeared to favor the forelimb contralateral to the lesion.

Seven days after the production of the striatal lesions, the animals were prepared for determination of cerebral glucose metabolism or blood flow. Femoral venous catheters were inserted under light ether anesthesia, and the animals were allowed to recover for 4 hours in Plexiglas rodent restrainers. The animals used in the determination of cerebral glucose metabolism received an intravenous bolus injection of [^{14}C]2-DG (100 μCi/kg, 60.3 mCi/mmole) or [^{14}C]glucose (100 μCi/kg) in 0.5 ml of saline followed immediately by a 0.5-ml saline flush of the catheter. The distributions of both [1-^{14}C]glucose (60.1 mCi/mmole) and [6-^{14}C]glucose (52.7 mCi/mmole) were examined. The animals were killed by intravenous injection of KCl and decapitation 45 minutes after [^{14}C]2-DG administration (*2*) or 10 minutes after [^{14}C]glucose (*12*) administration. Cerebral blood flow was studied by the intravenous infusion of [^{14}C]iodoantipyrine (100 μCi/kg, 58 mCi/mmole) for 1 minute, after which the animals were decapitated (*13*).

The brains were removed rapidly, blocked caudal to the level of the inferior colliculus, and frozen onto microtome chucks with crushed Dry Ice. Coronal sections (20 μm) of the forebrain through the level of the lesioned striatum were cut in a cryostat at −18°C, collected on cold glass slides, and rapidly desiccated on a hot plate. Brain sections and calibrated ^{14}C plastic reference standards (*14*) were apposed to Kodak type SB-5 film for 3 to 7 days. We measured the optical densities of the resultant autoradiograms with a microcomputer-assisted spot densitometer (*15*), and we determined the regional brain isotope concentrations by using curves generated from the reference standards. A minimum of eight measurements was obtained from each striatum in at least six sections through the center of the lesion (Fig. 1, A through D). Data on striatal isotope uptake and retention were expressed as the ratio of the lesioned to the contralateral (control) tissue ^{14}C content.

Striatal uptake of 2-DG in awake, lesioned rats was reduced by 20 percent on the lesioned side as compared to that on the contralateral side [lesion/control ^{14}C ratio = 0.80 ± 0.03 (standard error of the mean), $N = 6$]. The distribution of label within the lesion was heterogeneous; in contrast, there was relative homogeneity in the contralateral striatum and in unlesioned animals (Fig. 1A) (*16*). These results are in agreement with qualitative (*9*) and quantitative (*8, 10*) studies on 2-DG metabolism after the production of striatal kainate lesions.