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Psychological Well-Being of Nonhuman Primates: A Brief History

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The history of the development of programs to achieve psychological well-being of nonhuman primates used in research, education, testing, and by zoos and dealers has followed two paths: congressional legislation and professional judgment. The term psychological well-being is perhaps best known because of its inclusion in legislation. In 1985, Congress amended the Animal Welfare Act of 1966 (PL 99-198) and included requirements for a physical environment adequate to promote the psychological well-being of primates. The American Association of Zoological Parks and Aquaria accredited zoos have a long history of seeking better ways to house and exhibit nonhuman primates. However, comments in the remainder of this article apply only to nonhuman primates used in research, education, and testing.

In 1991, following a lengthy period of public discussion on how this law should be put into practice, the United States Department of Agriculture (USDA) amended the Animal Welfare Regulations (Code of Federal Regulations, n.d.) to include a requirement that dealers, exhibitors, and research facilities must "develop, document, and follow an appropriate plan for environmental enhancement adequate to promote the psychological well-being of nonhuman primates" (p. 75). With this amended regulation, dealers, exhibitors, and research facilities were given a reasonable period to develop the required written plan for achieving psychological well-being. Almost immediately, however, USDA inspectors began asking regulated institutions for their plan during annual unannounced inspections.

The law raised the bar of compliance but lacked standards by which to establish meaningful programs or goals and resulted in greatly divergent expectations by in-
spectors and vastly different approaches by the institutions. The only consensus shared by inspectors and institutions was a sense of frustration.

Although neither the USDA nor the regulated institutions seemed prepared to deal with this issue, it was not levied like a hammer overnight. In fact, there was much activity surrounding this very issue for at least 4 years preceding implementation of the regulation by the USDA.

**PRIMATE HOUSING AND WELFARE IN THE MID-1980s**

What was happening between 1985 and 1991? We know what the USDA was doing (reading some 30,000 letters from a concerned public about how to implement the new law). What, however, were primatologists and the potentially affected institutions doing? More specifically, what were they doing for primate enrichment before 1985, when Congress was prompted to act in such a way? For those of you who were working with primates 14 years ago, try to remember how they were housed; what training programs were provided for the animal care staff; and, if behavioral observations were being made, to what use they were put. How many primate behaviorists do you know who were around then? Was this even an issue for your facility?

This should not be left up to our memories of this time. Instead, consider a key reference: the *Guide for the Care and Use of Laboratory Animals* (Institute for Laboratory Animal Research [ILAR], 1985). It too was published in 1985 and represented the state of the art and conscience at that time. The term psychological well-being was used in the 1985 *Guide*, which was written and published prior to amendment of the Animal Welfare Act of 1985. What did it have to say about this subject?

Throughout the text, there are general cautions about proper training of personnel, handling of the animals, and caging (ILAR, 1985). The chapter “Laboratory Animal Husbandry” contains specific language relevant to the question. In “Housing Systems,” we read that cages should permit normal postural adjustments and provide a resting place and a comfortable environment.

The section titled “Social Environment” tells us “There is little objective evidence for defining adequate care in relation to social environment,” and that “the data are limited and contradictory” (ILAR, 1985, p. 12). It continues: “When appropriate, group housing should be considered for communal animals” (p. 12). A few sentences warn of the risks of social housing: “Population density can affect reproduction, metabolism, immune responses, and behavior. Group composition should be held as stable as possible ... because mixing groups or introducing new members can alter behavioral and physiological functions” (p. 13). Although the section concludes with “Consideration should also be given to enriching the environment as appropriate to the species, especially when animals will be held for
long periods” (p. 13), the recommendations for enriching the environment to achieve psychological well-being were absent.

In the section “Activity,” we find the following: “Unfortunately, there are no unequivocal data relating the quality or quantity of an animal’s activity to its physical or psychological well-being” (ILAR, 1985, p. 17). The section discusses “supplemental or induced activity” (a term it uses to imply exercise), in which it refers to treadmills, walking on leashes, and providing access to a run (p. 17). It would seem from this section, as in the previous sections, that the authors were focused more on physical than psychological fitness.

One is left feeling that, although the animals should be comfortable in their cages, able to express normal postural adjustments and, whenever possible, be housed with compatible conspecifics, little was discussed in the years immediately preceding 1985 regarding what we have come to know as environmental enrichment. And, although social housing was appropriate for some communal animals, there seemed to be little rationale provided for how social housing might benefit individual animals.

I believe this reasonably portrays the status of primate housing and welfare in the mid-1980s. Certainly, there was concern for the welfare of nonhuman primates, but this concern was general in nature and often expressed in terms of professional judgment rather than more specific recommendations or standard operating procedures by which to achieve and assess desired goals of well-being.

A review of the laboratory animal science literature between 1985 and 1991 for evidence of the number of publications on primate enrichment or psychological well-being is not a particularly useful indicator of activity in the field. This was a young science, and manuscripts often did not get acceptable reviews for publications. In addition, although the National Institutes of Health’s (NIH) Division of Research Resources (now the National Center for Research Resources) announced that funding was available to support studies on psychological well-being, very few fundable proposals were submitted. Nevertheless, there was a rise in the level of interest in this subject and in the number of papers presented at conferences of the American Association for Laboratory Animal Science, the Animal Behavior Society, and the American Society of Primatology (ASP). The papers that were published (for example, Bayne, 1989, 1991b; Brent, Lee, & Eichberg, 1989; Collinge, 1989; Line & Morgan, 1991; Platt & Thompson, 1985; Rumbaugh, Washburn, & Savage-Rumbaugh, 1989) or presented at scientific meetings often focused on primate enrichment and arguments about what psychological well-being really meant in practice. A number of papers decried the usefulness of such a construct as psychological well-being and
argued that it could never be measured. The size of the cage required to achieve the desired degree of well-being came under intense debate, and some papers argued that primates achieved no gain in physical or psychological well-being when housed in cages larger than those recommended in the Guide (ILAR, 1985, pp. 123–141).

The 6-year period following 1985 was one of transition. The Guide (ILAR, 1985) had used the term psychological well-being without attaching specific meaning to it, but Congress put it into law, and the USDA would implement regulations requiring something having to do with a primate’s psychological well-being. I remember chairing a meeting of the ASP in Buffalo, New York, shortly after passage of the 1985 amendment, in which an impressive array of primatologists spoke on the psychological well-being of nonhuman primates. Most of the speakers were in academic institutions studying the normal behavior of primates in captivity, including the effects of social versus single housing and the environmental contributions to development, reproduction, and cognition. A senior representative of the USDA’s Regulatory Enforcement and Animal Care (the office responsible for implementing the Animal Welfare Regulations) was also invited and participated in the discussions. This was the first opportunity for the scientific community and a senior employee of the USDA to discuss how this new regulatory language might be put into practice and how it might affect the animals.

For several years following completion of the applicable psychological well-being regulations, the USDA and the regulated public sought ways to apply the regulations that were good for both the animals and the research in which they were being used. Some institutions developed excellent plans, as called for in the regulations (Bayne, 1991a; Fritz & Howell, 1993). Some plans were contained on a few 3 × 5 cards, and some institutions simply had no written plan at all. In an attempt at achieving some consensus, the USDA and the NIH asked the National Research Council (NRC) of the National Academy of Science to provide guidelines that would assist institutions and inspectors alike. They asked the NRC to provide species-specific strategies for psychological well-being and an indication of the methods by which these strategies could be assessed. The subsequent report, Psychological Well-Being of Nonhuman Primates (ILAR, 1998), addressed these goals and serves to fill a large void in the literature.

As the preface states, however, “This report is not the final word” (ILAR, 1998). This caution is added in recognition of the diverse size and nature of affected institutions, the diversity of the behavioral needs of over 40 species of nonhuman primates held in captivity, and the relative paucity of knowledge about the importance of some life experiences on the future well-being of some species. The NRC-appointed authors and reviewers of the report adopted a performance approach in which desired goals are stated, but strategies that can be used to achieve the goals are left up to professional judgment according to the needs of individual
animals and institutions. At this writing, the USDA is working to integrate the re-
port into a policy to be used by inspectors. This policy is to be published in the Federal Register for public comment.

CONCLUSION

The history of evolving laws and policies regarding the well-being of nonhuman primates originated in the 1985 edition of the Guide (ILAR), which gave focus to the issue but lacked specific recommendations for achieving desired goals. In 1991, the USDA published a revision of the Animal Welfare Regulations that required each applicable institution with nonhuman primates to "develop, document, and follow an appropriate plan for environmental enhancement adequate to promote the psychological well-being of nonhuman primates" (p. 75). Many such plans were developed, but many were not. Also, inspectors and institutional representatives disagreed about the term psychological well-being and exactly how to measure desired goals or outcomes. Consequently, the NRC’s ILAR convened a panel of experts, held numerous public discussions, and published Psychological Well-Being of Nonhuman Primates (ILAR, 1998), which is incorporated into the Public Health Service Policy on Humane Care and Use of Laboratory Animals (Public Health Service, 1996) and used by the Association for Assessment and Accreditation of Laboratory Animal Care International for evaluation of institutions seeking accreditation.

The NRC report will be helpful to regulated institutions and the USDA by unifying inspector expectations and clarifying some of the issues. Ultimately, however, the welfare of more than 50,000 nonhuman primates used each year in biomedical research, along with those held by zoos and dealers, rests with institutional officials, scientists, veterinarians, animal care and use committees, and technicians. Only through sincere effort by many can the goals of the laws and policies be achieved and the well-being of each captive nonhuman primate be ensured.

REFERENCES