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EFFECT OF SALINE ADDED TO FOOD ON WEIGHT GAIN OF HAND-RAISED FALCONS

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A number of published studies have suggested the importance of adequate fluids in the diet of nestling raptors (Olendorff, R. R., *Raptor Res.* 6(1):6-10, 1972; Dobbs, J. C. et al. *Hawk Chalk* 18(3):34-36, 1979; Oliphant, L. W. and S. V. Tessaro, *Raptor Res.* 19(2/3):79-84, 1985). Weaver and Cade (Falcon propagation. The Peregrine Fund, Inc., Boise, Idaho. 1985) recommend the addition of 0.9% saline or Ringers solution to ground Common Quail (*Coturnix coturnix*) to feeding young falcons, stating that sufficient fluids are necessary "to ensure proper digestion." Nevertheless, numerous comments made at raptor propagation workshops indicate that many breeders are still not supplementing diets with fluids. This paper presents data suggesting that growth rates of hand-reared falcons are substantially increased if saline is added to their food.

Data were collected from young falcons raised at The Peregrine Fund, Inc., Cornell University, Ithaca, New York. Weight gain of offspring hatched in 1980 from 5 pairs of Peregrines (*Falco peregrinus*) and one pair of Gyrfalcons (*F. rusticolus*) were compared with weights of their offspring hatched in 1977. Young were raised in a similar manner both years except that 0.9% saline was added to the diet in 1980. An unmeasured quantity of saline was added to ground quail sufficient to produce a semi-fluid consistency. Drying 2 samples of ground quail (with and without saline) showed an increased water content of about 5% in the saline sample (72.7% and 67.8%, respectively). Weights of young falcons were taken in the early morning prior to first feeding at days 0 (hatch day), 5 and 10. Birds were not differentiated as to sex since a major divergence in body weight does not occur until after day 10.

Day 10 weights of 1980 offspring were approximately twice that of 1977 offspring (Fig. 1). In spite of the small sample sizes the differences in average weights at day 5

and day 10 are consistent and statistically significant for most of the pairs. A *t*-Test pooling weight data from the 5 peregrine pairs showed a highly significant difference at days 5 and 10 ($P < 0.0001$). This level of significance is especially surprising considering that it pools data from subspecies with considerably different average body weights and possibly different growth rates.

Although effects of saline added to the diet appear considerable, other uncontrolled factors may have contributed to the remarkably consistent differences in growth rate between the 2 years. There may have been, for example, small differences in feeding regimes such as amount fed/feeding, number of feedings/day, timing of feedings, etc. It was not determined if salt(s) are important or only increased water content. Similarly, the physiological mechanism for the observed stimulation of growth rate is presently unknown. After day 10 young falcons were returned to adults for further rearing and long-term effect, if any, on body size was not determined. These questions should be addressed under carefully controlled conditions using larger sample sizes, perhaps with a species such as the American Kestrel (*F. sparverius*).

ACKNOWLEDGMENTS

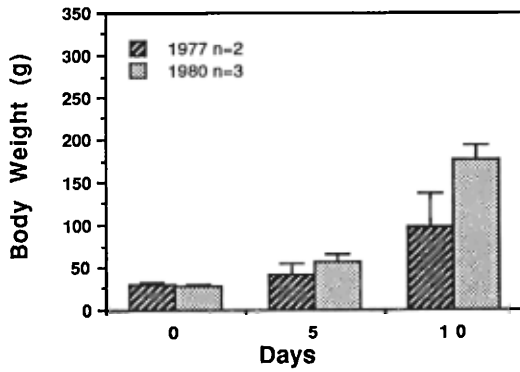
This project was carried out at Cornell University while on sabbatical leave from the University of Saskatchewan. I am indebted to Tom Cade and The Peregrine Fund for allowing me to spend time at their facility and particularly to Bill Heck in helping me to gather data for this study.

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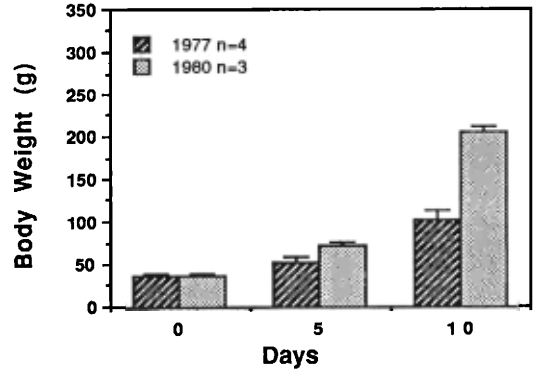
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Figure 1. Average weights at 0, 5 and 10 days of age of young from 5 pair of Peregrines (Pairs 1-5) and 1 pair of Gyrfalcons (Pair 6) with (1980) and without (1977) saline added to their diet. Brood sizes (n) for each pair are given and the subspecies of the Peregrine pairs indicated above the graphs. Bars indicate standard deviations.

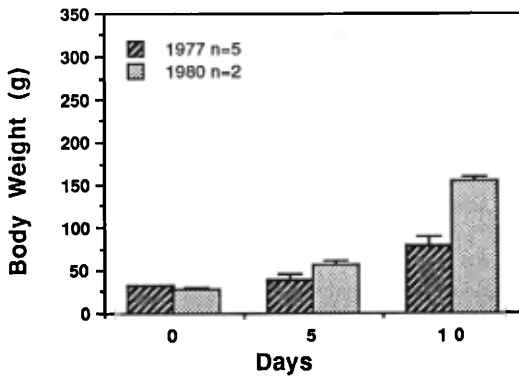
Pair #1 (*E. p. cassini*/*F. p. anatum*)



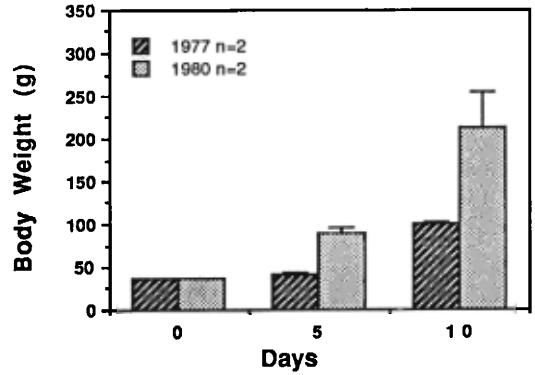
Pair #2 (*F. p. brookel*)



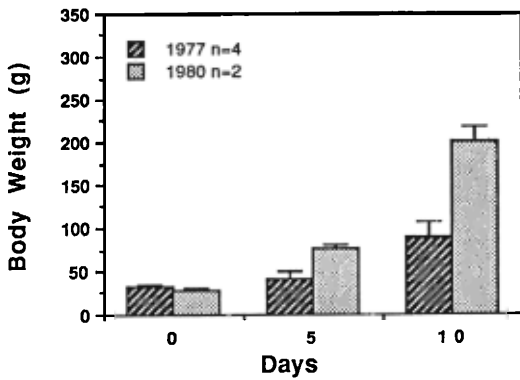
Pair #3 (*F. p. pealei*)



Pair #4 (*F. p. peregrinus*)



Pair #5 (*F. p. tundrius*)



Pair #6 (*F. rusticolus*)

