

THE EFFECTS OF FOOD GORGING AND FOOD ABSTINENCE ON THE GROWTH OF JUVENILE GARTER SNAKES.

Contents: Foreword - Introduction - Results and discussion.

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FOREWORD

James S. Meyer and Arthur P. Kowell have done research on the consequences of food abstinence and high feeding schedules on the growth of juvenile garter snakes. This work was published in the *Journal of Herpetology*, 1973, Vol. 7(3): 225-229. Hans van der Rijst reports about this publication.

INTRODUCTION

Sixteen newborn garter snakes (*Thamnophis sirtalis sirtalis*) were each housed separately in terraria of 18x18x23 cm (lxwxh). The temperature during the experiment was 27°C. When they were two days old, the snakes were weighed daily. Ten snakes (group D) received earthworms daily, cut into pieces of 1-2 cm length. The remaining six (group W) received identical pieces of earthworm every week.

After fourteen days the snakes which were fed daily received the same diet as the other group. After another three weeks all snakes were fed nothing for three weeks. After this they were fed daily for one week, after which the experiment was ended.

RESULTS AND DISCUSSION

One juvenile from group D died after nine days, through which the size of this group was reduced to eight specimens. The other juveniles stayed alive during - and also a considerable time after - the experiment.

Four snakes from group D ate on the first day that food was offered; the remainder started to eat one day later. For the first three weeks they ate practically every day, except during sloughing periods. Mostly they ate one and sometimes two pieces earthworm. During the fourth and fifth week the garter snakes started to eat more prey per feed. From that moment one the snakes started to skip a few days after a meal before they accepted their next meal. Between two meals there was, on average, 2-4 days.

All snakes from group W ate when they were fed for the first time at an age of eight days. As long as they were not in a sloughing period, the garter snakes kept eating their pieces of earthworm every week. For the first three weeks they ate 1-3 pieces earthworm (average two pieces). From the fourth week onwards they ate three pieces, sometimes four, on average. The greatest eater once ate five pieces. Therefore they ate more food per meal than the snakes from the group that was fed daily. This is perhaps an adaptation: you are offered less often food, so you eat more per meal. Of course this is limited: at a certain moment you simply are "full". During the twenty weeks that this experiment lasted, all snakes sloughed 3-5 times.



Foto 1: *Thamnophis sirtalis sirtalis*; foto P. Schiereck.



Foto 2: *Thamnophis sirtalis parietalis*; foto P. Schiereck.

It was obvious, whether feeding was daily or weekly, it rapidly affected the growth rate. The garter snakes which were offered food daily clearly grew faster than their brothers and sisters. It is remarkable that the length increase was much more uniform than the weight increase. This of course is logical because the snakes suddenly increase in weight after feeding whilst growing in length is a steady, continuous process. The snakes that in the first instance were fed daily from the thirteenth week onwards were also only offered food once a week. Their growth speed immediately diminished. It is remarkable that in the weeks when they were not fed the weight of the juveniles strongly decreased. Their growth however continued. The snakes became rather skinny; they decreased in weight and at the same time increased in length. After the hunger period the snakes again were daily fed and their weight rapidly increased again.

