In the 1960’s Jorg Eichberg and Robert Shade found that blood pressure rose with age in their chimpanzee colony in Texas, similarly to a Western urbanized community. The biscuits which the chimpanzee were fed contrived a daily sodium intake of 6-12 gm of salt. The chimpanzees refused to eat biscuits with a much lower sodium content, having become habituated to the salt taste.

In Gabon (formerly French Equatorial Africa), Dr. Alan Dixon, Director at a chimpanzee research station, was agreeable to carrying out a collaborative experiment to determine the effect of increase of salt intake on blood pressure. All animals had a liberal fruit and vegetable diet, supplying 2-20 mmol of Na+ per day, and 200-300 mmol of K+, and were living in stable social groups. They were divided in two groups of 13 and were age and sex matched - a control group and an experimental group. Both groups received a twice daily infant Cerelac drink giving a high Ca++ intake. One group had NaCl added to the daily Cerelac intake, so the comparison of the control and experimental group was a one variable experiment - The effect of salt on blood pressure.

No significant change in blood pressure was seen in the control group over the two and a half years of the experiment. With the addition of 5 gm of salt per day to the diet (circa 100 mmol Na/day) mean systolic blood pressure had risen 12 mm of Hg relative to baseline by week 19.

Following a further 65 weeks of addition of 10-15 gm of salt to the diet, mean systolic blood pressure was increased by 33 mm of Hg (p <0.001) relative to baseline and control group, and the mean diastolic had risen 10 mm Hg, and the mean blood pressure was increased by 15 mm Hg.

Salt was withdrawn, and 20 weeks later the mean systolic, diastolic and mean blood pressure were essentially the same as two and a half years earlier. Overall, in the experimental group, perhaps similar to the human situation, a few animals (n = 5) did not show increase of blood pressure.

The results of the one variable experiment where other variables like K and Ca intake had not changed, showed unequivocally the effect of salt on blood pressure in the species closest to humans.
In 2001, a further experiment was done in the Gabon. With the chimpanzees on a fruit and vegetable diet supplemented by biscuits, the sodium intake was a low 75 mmol/day for 2 years. Then for a second period the sodium content of the biscuits was changed to provide a very low daily intake of 35 mmol/day for 9 months, and then 120 mmol/day for the next 14 months. As before K+ and Ca++ intakes were liberal.

The reduction of sodium intake from 75 to 35 mmol/day reduced mean systolic blood pressure by 5.3 mm Hg, and the increase to 120 mmol/day raised it by 11 mm Hg systolic.

Overall, the results of the chimpanzee studies have important implications for health of the human population. The possible effects of low K and Ca intake were eliminated as were problems of stress, alcohol intake, and smoking as with human studies.

As well as this chimpanzee study Denton had made a major analysis of the role of salt in biology set against general evolutionary considerations “The Hunger for Salt, Springer Verlag, 1982”.

Harold Schmeck Jr., the senior New York Times science writer at the time of publication wrote that this book was probably the most comprehensive treatment of the subject ever completed.

Immediately subsequent to the publication of this study on the chimpanzees in Equatorial West Africa in “Nature Medicine”, the Salt Institute of Washington lodged a petition with the Director of FDA proposing that the labeling of food in the US in relation to sodium content should be abolished. The reasons cited were scientifically vacuous.

Professor Denton wrote to Dr. Kessler, the then Director of FDA, refuting the arguments, and shortly afterwards went to Washington to address the senior scientists of FDA, and was accompanied by Dr. Adrian Ivinson, the Editor of “Nature Medicine” – About six weeks later he was notified that the Salt Institute had withdrawn its application.

Earlier in Australia, Professor Denton proposed, and the Government accepted regulations virtually abolishing the practice of adding salt to baby and infant foods on the basis it was done to attract acceptance based on the habituated salt taste of the mother. The Heinz
Company in Australia was most cooperative, recognizing the medical logic. The example was influential in other countries.