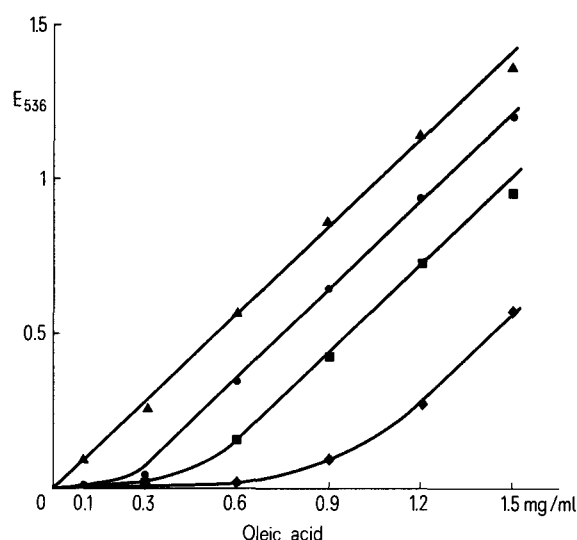


nates were determined with sulphophosphovanillin reagent (Zöllner and Kirsch³) and anthrone (Van Handel⁴), respectively. As usual, sodium azide was added to the elution buffer as a bacteriostaticum. It is known that this compound interferes with the anthrone reaction for the determination of carbohydrates⁵. Cholesterol estimation may also be affected by the presence of azide^{6,7}. To test the reliability of the vanillin method for lipid estimation in the presence of sodium azide, which became questionable after the results of Vladescu et al.⁸, a model study was undertaken with some lipid compounds in the presence of varying amounts of this bacteriostaticum.

In the figure is plotted the extinction at 536 nm, the optimal wavelength for the vanillin test, vs the amount of oleic acid in the presence of increasing quantities of sodium azide. It turns out that sodium azide decreases the extinction to an extent dependent on its concentration. This implies that the calculated lipid values will be underestimated, which confirms the results of Vladescu et al.⁸. With lecithin and lipoprotein (rat β -lipoprotein) a similar picture was obtained to that with oleic acid; a less pronounced curve was obtained with cholesterol (figures not depicted).

When lipids are extracted from the eluent before estimation there is no interference by azide. This was also found for other quantitation methods⁷. When azide is added after the formation of the alkenyl cation⁹ by H_2SO_4 there is no effect either. Calculation shows that the underestimated amount of oleic acid is about equimolar with the amount of azide. We therefore think that the interference is caused by a competition for the double bonds between azide and H_2SO_4 , and not by competition between azide and vanillin as was suggested by Vladescu et al.⁸.

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Plot of E_{536} vs the concentration of oleic acid in the presence of increasing concentrations of sodium azide. \blacktriangle — \blacktriangle , 0% azide; \bullet — \bullet , 0.005% azide; \blacksquare — \blacksquare , 0.01% azide; \blacklozenge — \blacklozenge , 0.02% azide.

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The tooth replacement phenomenon and growth in the green iguana, *Iguana iguana*

L.W. Kline

University of Alberta, Faculty of Dentistry, Department of Oral Biology, Edmonton (Alberta, Canada T6G 2N8), November 22, 1982

Summary. A long term study of the relationship between growth and the increase in tooth width and number of teeth was conducted. The results indicate that the tooth replacement phenomenon provides a mechanism for increasing tooth size in relation to increasing body size.

A continuous succession of teeth is characteristic of the dentitions of non-mammalian vertebrates. Each new tooth is initiated superficially inside the jaw. As it grows it enters the oral cavity where it functions for a few months before being replaced from the side and below. The pattern of replacement is precise and results in a condition known as the wave replacement of alternate teeth^{1,2}. The teeth are replaced in waves which generally sweep through alternate tooth positions from back to the front of the jaw³. The maintenance of a dentition in animals who use their teeth to grasp and hold prey is of great importance. The replacement of alternate teeth ensures that no toothless gaps occur⁴. The replacement of teeth may allow for the growth of the teeth in order to maintain their relative size to the growing dentary and maxilla. Records of body weight, body length, the number of teeth, and tooth width for 10

young green iguanas, *Iguana iguana*, were kept over a period of 2.7 years to examine the relationship between tooth size and the number of teeth and growth. This period of time is considerably longer than a typical 8 month period⁵.

Methods. Ten young green iguanas, of approximately the same age, were maintained in a large cage well supplied with water and fed a varied vegetable diet which was supplemented with dog food and a nutritional supplement, SA-37 (Rogar/STB) for 2.7 years. The animals were kept at a constant temperature of $32 \pm 1^\circ C$, the mean daily temperature of Panama, their place of origin⁶. The photoperiod was maintained on a 12-h cycle. The fluorescent tubes used provided illumination having a spectrum similar to sunlight, including an UV component. In addition, 2 spot lamps were provided for basking.

Records of snout to vent length, body weight, mesial-distal (anterior-posterior) tooth width, and tooth number were taken initially, after 0.92 years, and after 2.7 years. In order to measure the medial-distal tooth width, the lizards were anesthetized with ketamine HCl. One lizard was also sacrificed at each time, the skull cleaned, and detailed analysis of tooth width performed. The width of the posterior and anterior teeth on the maxilla and dentary was measured using dental calipers. The number of tooth positions was determined by taking a wax impression of the bite. A piece of dental impression wax was inserted into the mouth; the jaws were closed manually; and the teeth thus driven into the wax. When removed the number of tooth positions could be counted with the aid of a binocular dissecting microscope.

Results. When the mesial-distal tooth widths were measured, a lack of symmetry was observed. The dentary teeth were slightly larger than the corresponding maxillary teeth. However, this difference was not statistically significant. The results for the dentary teeth only are presented as their measurements were more easily obtained. The results are summarized in table 1.

Table 1

Mean body weight (g)	Mean length (cm)	No. of teeth	Tooth width (cm)	
			Posterior	Anterior
93.7 ± 3.7	13.8 ± 0.78	17	0.84 ± 0.1	0.72 ± 0.1
780.0 ± 8.5	26.0 ± 1.10	22	1.20 ± 0.1	0.96 ± 0.08
1720.0 ± 10.3	34.0 ± 1.30	26	1.50 ± 0.14	1.00 ± 0.13

The teeth were observed to be wider in the posterior than in the anterior segment of the dentary. The teeth were observed to increase in width with age. In order to determine the degree of correlation between growth as measured by the mean body weights and mean body lengths and the number of teeth and tooth width, the coefficient of correlation (R) was determined between the mean body weight and mean body length and the mean tooth width and number of teeth. The results are summarized in table 2.

Table 2. Coefficient of correlation (R)

Weight vs Length		No. of teeth	Posterior width	Anterior width
R = 0.96	R = 0.99		R = 0.98	R = 0.82
Length vs No. of teeth			Posterior width	Anterior width
R = 0.96		R = 0.99		R = 0.94

The high coefficient of correlation between the mean body weight and the number of teeth and mean posterior tooth width, as well as, the mean body length and mean posterior tooth width suggest that these 2 indicators of growth are closely related to tooth size and the number of teeth.

Discussion. Edmund⁷ suggested that the tooth replacement was a mechanism to replace teeth lost through use and keep a sharp dentition. Stephens and Presch⁸ analyzed tooth wear patterns in *Anolis sagrei* and its relationship to the tooth replacement phenomenon. Because the teeth showed wear, they concluded that this phenomenon enables the animal to maintain substantially sharper and functional teeth in proportion to its increasing size. They suggested a role in growth as well. Osborn^{9,10} suggested that tooth replacement is related to growth of the animal. With the exception of rodents, in order to increase the size and height of the teeth, it is necessary to replace small ones with larger ones. The addition of new teeth at the back of the jaw represents growth in length of the dentition and tooth replacement within families represents growth in height of the dentition.

The results of this long term study on the growth of iguanas and changes in the number of teeth and size support the view that tooth replacement is closely related to growth. The teeth gradually increased in size during the period of record keeping. The observation that the posterior teeth were slightly wider than the anterior teeth, at the same time of measurement, suggests that the new teeth added at the posterior of the dentary and those being replaced as the wave of replacement sweeps forward are replacing their smaller predecessors on the growing dentary. The results collected over the long term provide actual measurements to support the view that the tooth replacement phenomenon is more than a mechanism to replace dulled teeth, it is a phenomenon closely related to the natural growth of the individual animal.

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Are the pores of intramembrane particles of postsynaptic membrane transmitter-dependent channels?

P. Cuevas, J. A. Gutierrez Diaz and D. Reimers

Departamento de Investigación (Histología) and Departamento 'Sixto Obrador' de Neurocirugía, Centro Especial Ramón y Cajal, Madrid - 34 (Spain), April 26, 1982

Summary. The rat neonatal cerebellar cortex has been studied using the freeze fracture technique. In the dendritic postsynaptic membrane, intramembrane particles containing an electron-dense central area have been detected. This type of area could be a platinum aggregate within a channel which, crossing the particle, may connect the postsynaptic cytoplasm with the synaptic cleft.

During development, the cerebellum has a transitory cytoarchitectural organization in which various phenomena

(histogenesis, migration, cell-to-cell interactions) occur among the different cell components, leading to the charac-