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EDITORIAL : VAN DIE REDAKSIE

RESEARCH AND ITS APPLICATION

A large proportion of this and other recent issues of the *South African Journal of Nutrition* has been devoted to the work done by the National Nutrition Research Institute in developing a food supplement for the protein-needy.

The papers published were mainly those read at the Symposium on Proteins and Food Supply at Bloemfontein in April 1968, and their number and the range of disciplines involved emphasize the complexity of nutrition as a subject for research. The work concerned was carried out by physiologists, chemists, food technologists and clinicians and is an excellent example of a comprehensive investigation.

We wish to congratulate the NNRI on a job well and completely done. On the other hand, it is nearly a year since the relevant information was first made public and we have not heard of any active steps being taken to make this valuable weapon available for the fight against malnutrition in South Africa.

Research is an essential part of scientific activity all over the world, but it is also extremely costly, both in actual financial expenditure and in monopolizing the efforts of the limited number of scientists available. We cannot afford to undertake research if the information obtained is not utilized to the full.

The food supplement was developed mainly because insufficient powdered skimmed milk was available from South African sources and, in addition, because skimmed milk itself needs supplementation before it can rectify all the deficiencies of the almost exclusively cereal diet of many of our people.

It is perhaps unfortunate that the completion of this project should coincide with a period when there is an apparent surplus of skimmed milk in South Africa. We are convinced, however, that this surplus is only apparent and that the health, growth and intelligence of many of our less-privileged children are being seriously affected by grave malnutrition. In any case, the climate of this country is very unpredictable and it would seem likely that drought conditions, even now prevailing, will drastically reduce milk production in South Africa, thus eliminating the alleged skimmed milk surplus.

It is unrealistic to hope that the food industry will commence manufacture on the NNRI formulation until an assured market for the product exists. We therefore suggest that the Government and local authorities should consider setting the ball rolling, firstly by using the supplement widely in the institutions they control, and secondly by distributing it, in place of milk powder, in existing schemes such as those to combat kwashiorkor and tuberculosis. We also consider it highly desirable that the scope of the antikwashiorkor scheme should be reviewed as, in our opinion, it is at present inadequate.

One of the important ingredients of the NNRI mixture is fish flour, which, under present conditions, would require to be imported. South Africa is one of the great fishing countries of the world and a very large proportion of the local catch is exported as either fish meal or canned fish. The techniques of manufacturing a fish powder of neutral flavour and suitable nutritive value from either fresh fish or fish meal are known and are available to the South African industry. Relatively small quantities of fish flour of generally reasonable, but variable, quality have, in fact, been manufactured in the past in South Africa. The importance of establishing such an industry in this country has been emphasized in recent years when numerous complaints of a fishy flavour in meat have resulted from the intensive rearing of broiler chickens and pigs on feeds containing high proportions of ordinary fish meals. It should be possible to manufacture more than one grade of fish flour at the same plant, possibly bypassing certain operations when the product is not required for direct human consumption.

We should be very pleased to hear that South African industry had decided to undertake such a project. We feel that it would constitute a notable step forward in our fight to eliminate malnutrition in South Africa.

THE GASTRIN STORY

In 1905, Edkins[1] found that an extract of the gastric antral mucosa contained a powerful stimulant of gastric acid secretion and he termed this hormone 'gastrin'. Edkins's discovery was not accepted until 1936, when it was shown beyond doubt that a hormonal phase of gastric secretion did in fact exist. Investigations by other workers showed that antral gastrin was released into the portal circulation in response to food and to the mobility of the pyloric gland area of the stomach, but the most important factor stimulating gastrin release was later found to be alkalinity of the secretions bathing the antral mucosa. More recently the 'auto-regulatory concept' of the gastric phase of gastric secretion was delineated and it is now generally accepted that 'gastrin' production is stimulated at a pH greater than 3 and ceases completely at pH values below 1·5. Furthermore, gastrin is released not only in the presence of a meal in the stomach but by psychic stimulation. Therefore cephalic factors such as emotional trauma and the sight and smell of food cause gastric acid secretion by the dual mechanism of direct parietal cell stimulation and via the release of gastrin which then secondarily acts on the parietal cells.

These important physiological findings gained clinical status in 1955 when Zollinger and Ellison[2] recognized the syndrome of fulminating peptic ulceration, marked gastric hypersecretion and a non-B islet-cell tumour of the pan-

creas; a syndrome which justifiably now bears their name. The momentum of discovery since the demonstration by Gregory *et al.* in Manchester[3] that these non-B islet-cell tumours secrete 'gastrin' has been remarkable. In the last few years Gregory and Tracy[4] isolated 2 gastrins from the antral mucosa—gastrin I and II—and the amino-acid sequence of gastrin II was established. Gastrin was shown to be a sequence of 18 amino acids and although there were slight differences in the individual amino acids in various animal species, the C-terminal tetrapeptide amide portion (TRY.MET.ASP.PHE-NH_2) is common to all species and has all the physiological actions of pure gastrin. ICI synthesized a number of these terminal peptide series of various chain length which have come into use for subcutaneous and intravenous injection and as a snuff to stimulate gastric acid secretion. The dosages of these preparations for clinical use have been evaluated and there are now many centres using pentagastrin (Pentavlon, ICI) in preference to histamine as a test of gastric acid secretion.

To round off this fascinating saga, McGuigan has recently developed an immuno-assay method for producing antibodies to human gastrin and has also been able to localize gastrin intracellularly by immunofluorescent techniques.[5,6] It is likely that methods of measuring circulating serum gastrin by these techniques will soon be available. What of the future? If these latter findings are substantiated, the diagnosis of Zollinger-Ellison syndrome will be considerably simplified and it might become possible, on the basis of the level of 'serum gastrin', to ascertain whether peptic ulceration in any individual patient is due to excess gastrin production. Antigastrin preparations, either chemical or antibodies, are being mooted, but until such time as these are produced, the logical treatment for patients with peptic ulceration with hypergastrinaemia would be removal or inactivation of the yet unidentified 'gastrin cell area' of the pyloric antrum.

1. Edkins, G. S. (1906): J. Physiol. (Lond.), **34**, 133.
2. Zollinger, R. M. and Ellison, E. H. (1955): Ann. Surg., **142**, 709.
3. Gregory, R. A., Tracy, H. J., French, J. M. and Sircus, W. (1960): Lancet, **1**, 1046.
4. Gregory, R. A. and Tracy, H. J. (1964): Gut, **5**, 115.
5. McGuigan, J. E. (1968): Gastroenterology, **54**, 1005.
6. *Idem* (1968): *Ibid.*, **55**, 315.

PAP, VLEIS EN KAVIAAR

Die gemiddelde Blanke is oorgewig. Dit is waarskynlik gedeeltelik tewyte aan ooreet en gedeeltelik aan 'n foutiewe dieet. Heelwat aandag word tereg gegee aan die eetgewoontes van die minderbevoorregte en minder ontwikkelde bevolkingsgroepe in ons land en verskeie artikels het reeds verskyn oor die voedingsinname van sulke uiteenlopende groepe soos die !Kung Boesmans en die Pedi skoolgaande kinders. Dat die gebrekkige dieet van hierdie mense nagegaan moet word en waar moontlik aangevul moet word is vanselfsprekend noodsaaklik en omdat hulle oor die algemeen nie die geld of die kennis het om self hul voedselinname te reguleer nie is dit reg dat hulle die voedingsnavorsers se eerste belangstelling sal wees.

Aan die ander uiterste van die skaal staan die hoë inkomste groepe; die stedelike sakebestuurder met sy predileksie tot koronêre trombose en hipertensie. Aan hom word ook gereeld aandag geskenk want sy belange in die finansiële samelewing is sulks dat sy siektes en gesondheidsprobleme 'n ekonomiese faktor in die landsbestuur uitmaak. Ons hoor van die gevare van versadigde vetsure en van suiker, en iedere groot stad het talle salons waar die moeës en die modebewustes oefeninge kan doen en massering kan ontvang. Dieetkundiges is daar in oorvloed, miskien wel soms met uiteenlopende idees, maar advies is daar om van te kies en te keur.

Maar die arme middelman moet, soos so dikwels in die samelewing gebeur, sy paadjie alleen loop, en dat hy dringend hulp en leiding nodig het ly absoluut geen twyfel nie. Terme soos 'sous tannie' en "n knewel van 'n kêrel' is op 'n oorgrote meerderheid van ons plattelandse bevolking van toepassing en ongelukkig beteken hierdie uitdrukkings oor die algemeen slegs dat die bedoelde persoon erg te vet is. Die boepensie van die mans is al feitlik so ingeburger dat dit nie eers meer kommentaar uitlok nie en die korset-trotserende figure van talle van die vrouens word sugtend aanvaar as deel van die lot van die middeljarige. Iedere chirurg het al met moedeloosheid na die opwellende vetmassa van 'n buik met 'n ventrale breuk gestaan en kyk en gewonder waarom dit sy beskore lot is om sulke onmoontlikhede die hoof te moet bied.

Soos reeds gesê is hierdie oorgewigsprobleem deels tewyte aan ingeburgerde, verkeerde eetgewoontes. Groot hoeveelhede stysel en vleis driekeer per dag is vir die boer 'n normale dieet en dit is vir hom trouens ondenkbaar dat mens enige tafel as volledig gedek kan beskou tensy daar ten minste een soort vleis voorgesit word—hoe vetter hoe beter. Onder die laer inkomste groepe is groente en vars vrugte in 'n groot mate 'n luukse of 'n deel van die dieet wat eenvoudig geen aandag kry nie. Dit is maar selde dat doelbewuste oorweging geskenk word aan die gebalanseerde inname van vitamines en ander voedingsbestanddele. Solank daar genoeg is om versadiging, en dikwels oorversadiging, te verseker is alles reg.

'n Meer gesofistikeerde benadering tot voedsel bring gewoonlik mee dat die kos 'n hoër spesery inhoud verkry asook 'n hoër vetsuur inhoud. Die romerige, gegeurde kos van die lekkerbek is welbekend, maar dit bring gelukkig terselfdertyd mee 'n beter hantering van vars groente en 'n waardering van die smaak van sulke produkte wat nie doodgekook is nie. Ons ken almal die heerlike resultate van die kookgewoontes van ons oumas wat die vleis en die boontjies dou voor dag op die stoof gesit het. Lekker was dit voorwaar, maar aan die voedingsinhoud van die deurgekookte boontjies wil ons liefs nie dink nie.

Intensiewe navorsing oor die eetgewoontes van hierdie deel van ons bevolking en 'n doelgerigte propaganda veldtog om gewig af te bring en eetgewoontes te verbeter sal sekerlik in verbeterde volksgesondheid die koste dubbel en dwars terugbetaal.