of being able to distinguish autosomal recessive cases. We need no longer be quite so cautious about genetic heterogeneity in giving certain groups a disadvantage in evaluating methods of carrier detection, in investigating the mechanism, or in attempting the treatment of the disease. A minor consequence is that we may now assume that all mothers of isolated cases who are not carriers of the X-linked gene are ipso facto the mothers of new mutants. By proportional studies of the rate of detection of such mothers and of known carriers by serum creatinine kinase estimation, together with a count of the incidence of isolated cases in the population, it is possible to make a relatively direct estimate of the mutation rate. In the North of England it is about 10.5 x 10^-6 per gene per generation—a very high figure, which is, however, confirmed by the use of Hal-dane's classical indirect method.—I am, etc.,

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REFERENCES


**Respiratory Effects of Biological Detergents**

**SIR,—As many reports are being published in connexion with the harmful effects of so-called "biological detergents"**

I thought that your readers might be interested in the results of the investigations carried out by a group of doctors on the workers of a company near Venice concerned with the production of biological detergents.

A study was made of 155 randomly selected workers, the majority of whom were non-smokers.

<table>
<thead>
<tr>
<th>No. of Workers</th>
<th>Symptoms</th>
<th>Skin Test Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>Chronic Rhinitis</td>
<td>14</td>
</tr>
<tr>
<td>27</td>
<td>Chronic Rhinitis, Hoarseness, Persistent Dry Cough</td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td>Typical Asthma</td>
<td>17</td>
</tr>
</tbody>
</table>

Thus 20% only of this randomly selected group showed no symptoms involving the airways, and in 35% who had symptoms an allergy to enzymes existed. In subjects having a positive skin test, immediate positive reactions were noted, often severe, when making challenge tests using aerosols of extract of enzymes, and sometimes there were delayed respiratory manifestations. In ten patients the challenge was repeated after the administration of disodium cromoglycate; this afforded complete protection, thus confirming the allergic nature of response.—I am, etc.,

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**Diet and Athletics**

**SIR,—I read with interest your leading article on ”Diet in Athletics” (15 August, p. 361) and would certainly agree that the diet of many athletes is greatly influenced by fads which probably have no effect on physical fitness, if one ignores the psychosomatic effect.**

I should, however, like to qualify your statement that no evidence, in terms of success in athletic events, is yet available to support the work of Astrand and his colleagues.1 For some years the International Athletes’ Club has been aware of the possible significance of the work of Saltin,2 Astrand, and others in terms of enhancing endurance in athletics. In May 1968 the Club organized two trial 40-kilometre races for 10 top-class walkers. In the first trial half of them prepared by following a diet similar to that recommended by Astrand, and in the second the other half did so. The trials were under the direction of Dr. L. G. Pugh of the Medical Research Council. It was found that the athletes on the high carbohydrate diet walked significantly faster over the final 10 kilometres.

These findings were passed on to the British competitors in the endurance events in the Olympic Games in Mexico in 1968. No follow-up survey has been made to find out how many athletes have adopted the diet, but outstanding individual cases are known. Dr. Ron Hill used the diet before winning the European Marathon Championship in Athens in 1969 and the Common wealth Championship in Edinburgh this year. Dr. Michael Turner also achieved his best-ever cross-country performance this year using the preparation for the International Cross-country Championships with the diet. It is also being used by competitors in long-distance fell races such as the Lake District Mountain Trial.

We are at present engaged in field trials involving measuring changes in the respiratory quotient of an athlete during a three-hour run after various diets. Expired air is collected at intervals in a Douglas bag in a car driven alongside the runner. It is known that the respiratory quotient falls as glycogen reserves become exhausted. If a diet has enriched the glycogen reserves then this should postpone the drop in respiratory quotient which is, of course, accompanied by a feeling of exhaustion and an enforced slowing down.—I am, etc.,

MARTIN HYMAN.

Research Secretary, International Athletes’ Club.

Swindon, Wilts.

REFERENCES


**Potassium and Chronic Renal Failure**

**SIR,—With reference to the study by Dr. G. S. Stokes and others (18 July, p. 186) we should like to present a case of refractory hypertension in a patient despite long-term low sodium haemodialysis, which successfully responded to use of a potassium-free dialysate, suggesting a possible rele-