

Many swimmers use weight training and/or isometric training. These are good, but I am sure should be carried out daily or several times a week throughout the year. Wasting in muscle occurs soon, and swimming being only slightly weight bearing, does not produce adequate stimulus for hypertrophy to any great extent. Flexibility may be retained by exercises, but once lost, after mid-teens, is not easy to re-establish. Interval training is almost universally used to achieve cardio-respiratory efficiency and this can be continued on land by suitable circuits in the gymnasium. Apart from specialised skills involved in swimming movement, the swimmer may obtain his conditioning in varied ways, which add to the interest of the work and avoid the onset of staleness - these too promote fellowship which in turn produces team spirit.

Overseas, other problems enter the field. Long journeys, broken sleep, strange diet, or too much, varied climate - events held at times unsuitable to the individual, and some swimmers do badly in a morning - have all to be considered. Adequate time must be allowed for acclimatisation, and the use of a liquid or semi-solid meal prior to racing is worth consideration. Things in the world of swimming are good at present, but our eyes must look ever upwards.

Problems in Training: Cycling

Tommy Godwin, National Coach, B.C.F.

Injuries in cycling are not common and are usually due to crashes, being typically bruises, abrasions, with the occasional fracture. Some riders are apprehensive about anti-Tetanus injections and believe they affect performance.

With an increasing number of young people taking part in cycling we are worried about the possible harm that may come from overtraining, and also about the question of balanced development of the body in what is after all a highly specialised sport. These problems are underlined by the modern tendency to use more severe gear ratios.

There is some misunderstanding among cyclists and their trainers of the fundamentals of diet, particularly the role of vitamins, and we are as yet unable to give any authoritative guidance.

We are anxious that our cyclists should be properly fit and in good health before competing, and would welcome any facilities made available for appropriate examination and testing. Cramp is one of the major bugbears of cycling and we are anxious to prevent it if possible.

We are also anxious to apply wherever appropriate scientific methods to assess the potential of our cyclists, and would welcome advice and help on this matter. We are interested to know if there is any significance in biorhythms.

In conclusion, cycling is rather a cinderella among sports, and we find that we need help and guidance on a vast number of problems, including questions of the use of various foods and other substances which some may regard as dope, psychological problems, minor physical ailments and so on.

DIET IN TRAINING: dietary requirements in long distance cycling events.

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Until recently the use of specialised diets in cycling sports was limited by the inexperience of helpers available and the individual food habits of the performers. As the record times for cycling distances longer than 200 miles improved it became obvious that more serious consideration of diet was necessary both in preparation for attempts to set new records and to provide adequate supplies of nutriment during the events. This presented a series of problems which I have studied while being associated with cyclists interested in establishing new records in the sport.

The first problem was unspecific and concerned correction of excess weight and minor nutritional deficiencies revealed during the early parts of the training programme. The second problem was to adjust water and salt intakes during events of twelve hours and longer. In such events the particular cyclists concerned imbibed liquid at rates above one pint per hour while cycling and frequently showed minor symptoms of salt depletion which were corrected by adding an amount of salt (calculated from urine analyses) to the liquid imbibed. To mask this new flavour fruit juices and sugar were added. The third problem was to ensure that the intake of solids while cycling would be limited to easily absorbed precooked foods of high carbohydrate and low residue contents such as porridges and cream crackers. In organising the feeding arrangements for events lasting 24 hours and longer - such as when distances up to 1000 miles are cycled in $2\frac{1}{2}$ days - the amount of food and liquid required had to be estimated and apportioned along the route. In the absence of adequate energy