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PostScript

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Mandatory wearing of helmets for elite cyclists: new perspectives in prevention of head injuries

Cycling related injuries, especially those to the head, are common causes of morbidity, death, and disability and could largely be prevented by the proper use of hard shell helmets.[1 2] Unfortunately, obvious evidence is often not acknowledged, and the use of such a valuable preventive measure has been too long ignored. Media coverage of elite competitions, showing most athletes racing without helmets, has unfavourably influenced amateur and young cyclists for a long time. However, owing to the progressive increase in severe and fatal injuries, especially involving elite cyclists, and the evidence that the outcome of most of these tragedies might have been prevented,[1 2] the International Cycling Union announced that, from 5 May 2003, it is mandatory to wear a hard shell helmet in elite men's events for classes 4 and above. This decision was taken in agreement with the Professional Riders Association, who supported the initiative despite some internal differences of opinion. Images transmitted world wide during the 2003 Tour de France, a sporting event second in popularity only to the Olympics, are encouraging, showing all athletes wearing helmets throughout most of the race. This is a valuable message for both amateur cyclists and adolescents, as awareness is often more productive than restrictive measures. In addition, individual persuasion to wear helmets does not have the side effect of reducing the incentive to do cycling. Less cycling, in reaction to restrictive legislation, may counterbalance the beneficial effects on head injury prevention, as regular recreational aerobic activity, such as cycling, has manifest benefits on health, preventing the development of chronic disorders, including atherosclerosis, diabetes, osteoporosis, obesity, depression, and cancer.[3]

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Complex regional pain syndrome in thoracic outlet syndrome

We read with interest the article by Casey *et al*.[1] Notwithstanding their substantial work, we have a few comments about their article. First of all, we wonder whether they performed any evaluations for coagulopathy in such a patient with severe thrombosis and endothelial damage. We also wonder why they delayed surgery for one month, whether they prescribed an exercise programme before prophylactic left cervical rib excision was planned, if the patient initially had any neurological findings, such as muscle weakness, atrophy, hypoaesthesia, or reflex abnormalities, or any objective evidence of neurogenic thoracic outlet syndrome (TOS). As the patient was diagnosed with TOS and it is generally recommended that first rib resection and scalenectomy be performed for this condition, why these were not applied is not clear from the text.

The main point that we would like to stress is the mechanism of the patient's pain relief after sympathectomy. Do the authors believe that it was due to improved circulation, which we believe is unlikely in such occluded vessels, and could it have been confirmed by imaging? We believe that some of the painful symptoms may have been due to complex regional pain syndrome, a likely diagnosis in patients with TOS, in whom the sympathetic fibres around the subclavian artery, innervating the upper extremities, become compressed by a cervical rib. The patient's good symptomatic relief despite some arm claudication after surgery also supports our hypothesis. Thus we propose that the favourable outcome after sympathectomy may rather have stemmed from its beneficial effects on complex regional pain syndrome.

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Upper body contribution to high intensity cycle ergometer exercise: implications for blood lactate measurements and power profiles

We read with interest the article by Hunter *et al*.[1] We would like to elaborate a little on the measurement of high intensity exercise and in doing so identify possible factors that may have contributed to the conclusions drawn. We recently investigated the upper body contribution to high intensity exercise performance.[2] The purpose of the study was to examine the upper body contribution through handgrip to power profiles and blood lactate concentrations during high intensity cycle ergometry. Nine trained male subjects each completed a 20 second, high intensity cycle ergometer test twice, in a random manner, using two protocols, with a handgrip (WG) and without a handgrip (WOHG). Capillary (ear lobe) blood samples were obtained before and after exercise. Blood samples were corrected for changes in plasma volume, and analysed to determine blood lactate concentrations. In the WG protocol, mean (SEM) blood lactate concentrations sampled over the three conditions were 0.98 (0.33), 5.68 (0.46), and 9.14 (0.38) mmol/l respectively. During the WOHG protocol, blood lactate concentrations recorded were 0.99 (0.26), 5.58 (0.58), and 7.62 (0.65) mmol/l respectively. Differences were found ($p<0.05$) from rest to four minutes after exercise for both groups. Differences in concentrations were also observed between the groups at four minutes after exercise. Peak power output recorded using the WG protocol was also greater (1461 (94) *v* 1136 (88) W; $p<0.05$). No differences were recorded for mean power output, fatigue index, or work done. We also recorded the surface electromyography of the forearm musculature while performing each of the two protocols.[3] During the with grip ergometer tests, the intensity of the electrical activity in the forearm musculature was greater than the intensity of electrical activity recorded for the forearm musculature during 100% maximum voluntary handgrip dynamometer contractions, suggesting maximum isometric-type contraction during the "with grip" leg high intensity cycle ergometer tests. The findings of both studies indicate significant differences in power output and blood lactate concentrations between protocols. These findings suggest that the performance of traditional style leg cycle ergometry requires a muscular contribution from the whole body. Also, the upper body contribution may influence fatigue profiles of the lower limbs during this type of activity. Therefore, researchers should consider this, both in terms of the allocation of ergometer loads, and in the analysis of blood borne metabolites.

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