



Approaches to recreational landscape scaling of mountain resorts

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In the mountain resorts (MR) the climate and the landscape are natural medical resources which are very sensitive to anthropogenic influences [EGU2011-6740-3; EGU2012-6103].

Positive experience of the climatic and landscape treatment at the MR of the North Caucasus allowed us to establish fundamental interrelation between the quality of recreational landscapes (RL), climatic conditions and the efficiency of medical rehabilitation of people at the MR on the basis of rational use of natural medical resources.

There have been registered the following bioclimatic distinctions and physiological responses with the recipients suffering from high disadaptation according to the results of the complex route medical and geophysical studies on the urban and park landscapes. We have defined hot discomfort at the open space of urban territory when the weather is extremely hot and anticyclone – the thermal balance (TB) is higher than +840 W/sq.m, extreme risk of solar erythema burn - UVI – higher than 11, the low content of natural anions – lower than 260 ion/cm³, high coefficient of ions unipolarity (CIU) – 2.16 and a high temperature of the underlying surface (asphalt) 46.40C. At the same time in the resort park of vegetable association *Bétula péndula* (50 years) TB was significantly lower - +480 W/sq.m, there was no risk of erythema burn (UVI 4), an optimum level of natural anions was 840 ion/cm³ and the value of CIU was 0.98, grass and soil temperature was + 290C and there was a favourable background of evaporating metabolites. At such favourable bioclimatic change the patients have been registered to have the voltage reduction of the vegetative index (from 640 to 380; N-150), the increase in efficiency of neurohumoral regulation (from 0.12 to 0.34; N 0,50), the decrease in spectrum excitability of brain activity in the range of waves: delta 0 ... 0.4Hz by 16%, the increase in work activity of the brain in the range of waves: theta 4 ... 8 Hz, alpha 8 ... 13 Hz, beta 13 ... 19 Hz, gamma 19 ... 25Hz by 9-17%; the increase in adaptation layer of the organism by 21% and a versatility indicator of health – by 19%; the decrease in systolic (from 145 to 131 mm of mercury) and diastolic (from 96 to 82 mm of mercury) arterial pressure, the increase in indicators of carpal dynamometry (on the right hand from 27 to 36 kg, on the left hand from 25 to 34 kg), the increase in speed of thermogenesis (from 0.0633 to 0.0944 K/s) and quality of neurovascular reactivity (from 48% to 81%). In the whole the patient's cenesthesia has improved. We have also studied the responses of adaptive reactions with the recipients at other options of RL.

But researches are still being carried out in this direction. Their results will be used as a base of RL scaling of North Caucasus mountain territories. This problem is interdisciplinary, multidimensional and deals with both medical and geophysical issues.

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