

Incidence rates of lateral preference in various groups of professional activity

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Abstract

Incidence rates of lateral preferences of eye, ear, hand and foot were investigated in various fields of professional activity (Alpine skiers, ball players, musicians and surgeons). They were assessed by a questionnaire in reference with a large non-selected sample. Compared to the reference sample, left-side sensory lateralities were found to occur more often in professional musicians and ball players; foot preference was pronouncedly ambilateral in ball players and to the right side in skiers, while surgeons did not differ. Congruent lateralities (e. g. sensory-motor preferences directed to the same side within a given subject) prevailed in skiers and occurred less frequently in ball players and musicians. Special fields of professional activity thus seem to favour certain lateral preferences. The lateral preferences of the musicians were further subjected to a cluster analysis in comparison with the reference sample. This revealed structural changes in the interdependencies of lateral preferences of musicians, beyond mere differences in incidence rates.

Introduction

Laterality is usually studied solely with respect to handedness, neglecting the dominance of eye, ear and foot. A comprehensive human-factors account of lateral preferences should, however, include all four lateralities and their interrelations (Arnold-Schulz-Gahmen et al., 1999). Therefore, the question arises, whether incidence rates of individual laterality profiles vary with respect to professional activity. If so, a further question refers to whether mere quantitative differences occur, or whether these differences are based on qualitative changes in the pattern.

Method

Incidence rates of sensory (eye, ear) and motor (hand, foot) preferences were investigated in four professional groups: 251 surgeons (urology), 144 musicians, 57 Alpine skiers (members of the German National Team), 53 ball players (handball or basketball). Each subject was given a questionnaire that assessed lateral preferences (eye, ear, hand and foot), indicating the direction and degree of the respective preferences (Ehrenstein & Arnold-Schulz-Gahmen, 1997). The resulting incidences were compared with those of a representative sample of 3377 unselected persons as reference group.