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Relationship between the imagery modality and the dominant sensory modality of the task

In the context of motor action, mental imagery is a conscious process that implies for individuals to mentally simulate an action without executing it. It usually benefits performance, although in a less extent than physical practice (Feltz and Landers, 1983 for a review). The beneficial effects of mental imagery can be modulated by numerous factors as imagery modalities and task constraints (Callow and Hardy, 2004). We examined the influence of imagery modalities during mental practice of a knee joint angle reproduction task a) without vision of the limb which induces kinesthetic dependence and b) with a laser to be pointed towards a target which induces visual dependence. In both tasks, participants realized a pre-test before being divided into four groups of mental practice (practice session: external visual imagery, kinesthetic imagery, combined imagery and control. Finally, they performed retention tests 10 minutes and 24 hours after mental practice. Results indicated that the efficiency of mental imagery depends of tasks constraints, and highlighted the necessity to maintain constant the dominant sensory modality of the task and the imagery modality used during mental practice. Those results are discussed in relation with the specificity of learning hypothesis.

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