DEVELOPMENTAL CHARACTERISTICS OF SPORTS VISION IN BASEBALL PLAYERS
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Visual ability plays an important role in performance in fast-ball sports such as baseball or fast-pitch softball. The purpose of this study was to investigate sports visions of development and difference among baseball players. 240 male subjects with different educational stages (university, senior, junior, elementary) and baseball skill levels (international players, national players, non-athletes) participated voluntarily in this study. All subjects tested visual fatigue and static visual acuity for screening quality subjects, before measuring dynamic visual acuity (DVA), eye movement (EM), peripheral vision (PV), and momentary vision (MV) by ATHEVISION software. DVA was defined the ability to discriminate the fine part of a moving object, subjects required read numbers that move at high speed. EM was defined the ability to switch the visual line quickly, subjects required identify two types of symbols that flash randomly at various places on the screen. PV was defined the ability to ensure a broad visual field, subjects required identify two types of symbols that appear around a number at center of the screen. MV was defined the ability to assess a situation in a moment's time, subjects required repeat a symbol pattern displayed momentarily. Kruskal-Wallis one-way analysis of variance by ranks and Dunn’s multiple comparison procedure were used to process all data. The results indicated that (1) EM and MV are dramatically development after junior high school in national players and non-athletes (p<.05). International players at university stage have better DVA and EM than international players at other educational stages (p<.05). Elite players have different sports vision of developmental pattern. It might caused by high intensity practice for a long period. (2) Baseball players not only have better PV than non-athletes at junior stage, but also have better DVA than non-athletes at senior stage (p<.05). At university stage, international players have better DVA and EM. It reflected that sports vision is a significant factor for selecting into national team and competing in international championship. The results suggested that DVA and EM are vary by aging and are critical parameters between different level players, particular in elite players or at university stage. The findings, therefore, would apply to select potential player, to design visual training program, and to improve baseball skill. (The research, NSC 95-2413-H-216-001, was financially supported by National Science Council, Taiwan, ROC)

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