

A Literature Review of Ergonomics Sitting Studies to Characterize Safe and Unsafe Sitting Behaviors

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Abstract : As undesirable sitting posture is known to be a major cause of musculoskeletal disorder of office workers, sitting has attracted attention on occupational health. However, there seems to be no consensus on what are safe and unsafe sitting behaviors. The purpose of this study was to characterize safe and unsafe behaviors based on scientific findings of sitting behavior. Three objectives were as follows; to identify different sitting behaviors measure used in ergonomics studies on safe sitting, for each measure identified, to find available findings or recommendations on safe and unsafe sitting behaviors along with relevant empirical grounds, and to synthesize the findings or recommendations to provide characterizations of safe and unsafe behaviors. A systematic review of electronic databases (Google Scholar, PubMed, Web of Science) was conducted for extensive search of sitting behavior. Key terms included awkward sitting position, sedentary sitting, dynamic sitting, sitting posture, sitting posture, and sitting biomechanics, etc. Each article was systemically abstracted to extract a list of studied sitting behaviors, measures used to study the sitting behavior, and presence of empirical evidence of safety of the sitting behaviors. Finally, characterization of safe and unsafe sitting behavior was conducted based on knowledge with empirical evidence. This characterization is expected to provide useful knowledge for evaluation of sitting behavior and about postures to be measured in development of sensing chair.

Keywords : sitting position, sitting biomechanics, sitting behavior, unsafe sitting

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