What should I do now? Grouping and sequencing self-enactable behavior change techniques to teach them for physical activity promotion.

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Résumé

Introduction. While behavior change interventions typically rely on behavior change techniques (BCTs) to support individuals in modifying their behavior, they often focus on what providers should say or do to influence target populations. However, the long-term success of these interventions may depend on the individuals themselves being trained to apply these techniques autonomously. This gap may explain why many physical activity interventions fail to sustain behavioral change after program completion. To address this, a new taxonomy of self-enactable behavior change techniques (SEBCTs) has been developed (Knittle et al., 2020). These techniques are designed to be independently applied by individuals to support motivation and maintain physical activity. Yet, with 123 techniques identified, a major challenge remains: selecting the most relevant ones, determining their optimal sequence, and delivering them in an engaging and accessible format. This study aims to address these challenges by proposing a new conceptual organization and sequencing of SEBCTs, as the foundation for a digital training platform.
Methods. We performed a critical literature review on the wider BCT literature and conducted three workshops with 30 middle-aged Danish adult participants (Mage=46 years, 7 males) to explore their preferences, opinions on sequencing, teaching modes (e.g., gamification), and digital interface design through co-creation methods and framework analysis.

Results. First, we mapped the prerequisites of each SEBCT to ensure a logical and psychologically coherent progression across time and excluded techniques non relevant to the physical activity field. We then grouped 108 techniques into nine modules (e.g., preparation, goal setting, habit formation, social support), further divided into 26 categories (e.g., environmental restructuring, behavioral repetition). The modules and their categories were sequenced according to four key stages of change: contemplation, preparation, action, and maintenance. This sequence was guided by theoretical foundations (i.e., behavior change models), recent empirical evidence (e.g., beginning with learning goals before introducing performance goals may be optimal), key prerequisites (e.g., results from Baretta et al. (2025) suggest that commitment and prompts and cues are effective BCTs to promote habit strength within persons, but only when delivered together), and feedback from workshop participants

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(e.g., importance of teaching the use of social support techniques right from the start of the change process).

Discussion. Strategically sequencing SEBCTs and linking them to specific stages of change could enhance intervention effectiveness and pave the way for personalized modules tailored to individuals' preferences, activity, and mood data – ultimately offering the possibility of a highly engaging digital platform for SEBCT training. This approach can also guide researchers and practitioners in selecting and implementing BCTs tailored to diverse physical activity promotion goals.

Conclusion/perspectives. We plan to test this structured SEBCT sequence in a digital platform using a SMART (Sequential Multiple Assignment Randomized Trial) design. The next phase involves investigating how the sequencing can support dynamic personalization through methods such as: tunneling (Automatically directing users to specific modules based on segmentation variables), adjusting the timing or intensity of delivery based on user engagement, or framing of the intervention (adapting the tone, depth, and format of content). This work lays the foundation for more autonomous, adaptive, and sustainable behavior change interventions in physical activity promotion.

References:

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