

CrossFit: The Transfer of Training

The transfer of training (or training transfer, TT) is a multidimensional, multifactorial concept important to the understanding of how the qualities of practice augment real-time performance (e.g. sports, tactical situations, or any real-time task). According to the SAID (specific adaptation to imposed demands) principle, the body will adapt specifically to how one trains/practices--the adaptations are not random nor general (Lemberg & Nurmekivi, 2013). Issurin (2013) noted 3 major categories of factors affecting TT: individual, motivational, and environmental. Issurin (2013) also noted that most coaching exercises may be categorized as improving motor abilities/skill or improving technical abilities. (practice/training). Training in CrossFit exercises is very specific and for the most part, unique to CrossFit (except perhaps some general cardiovascular conditioning benefits). For example, two elements of TT that do not transfer well (from CrossFit to other applications) are concurrent activation potentiation (CAP) and perceptual-cognitive skills (Broadbent, Causer, Williams, & Ford, 2015; Issurin & Verbitsky, 2013).

Concurrent activation potentiation (CAP) effect is the amplification of motor output and neural excitation on the targeted musculature provided by the concurrent remote voluntary contraction (RVC) of more distal ("remote") muscles (Issurin & Verbitsky, 2013). This phenomenon is not new and dates back to the late 19th century known as Jendrassik Manoeuvre (JM) (Issurin & Verbitsky, 2013). For example, Japanese researchers found that teeth clenching affected shoulder adduction and ankle plantar flexion (Issurin & Verbitsky, 2013). Issurin and Verbitsky (2013) found that teeth clenching and abdominal contraction improved swimmers start-reaction and efficiency. CAP is such a specific phenomenon that any such beneficial effect to augment a CrossFit performance, would be unlikely to transfer to another real-world application.

Perceptual-cognitive skills (PCS) are important to honing anticipation (the ability to recognize the outcome [of an opponent's actions]) and decision-making (the ability to plan, select, and execute actions based on internal/external [sensory] information) (Broadbent et al., 2015). PCS can be trained/developed in sports including soccer and tennis (Broadbent et al., 2015). Much of the training in PCS has to do with representative tasks that challenge the participant to seek out environmental cues coupled with his/her present knowledge/expertise to expedite decision-making that leads to appropriate action (Broadbent et al., 2015). Some training tasks use temporal occlusion which occlude the vision at different times/points around key events to force the participant to pick up cues elsewhere (e.g. where might the ball land); other tasks use spatial occlusion (removing certain areas of information like a foot or arm that might give clues to the next action) to train the participant to use other pieces of information to make in inference (Broadbent et al., 2015). Both types of occlusion challenges are very specific to the task.

Additionally, two important components of training design are functionality of the task and action fidelity (Broadbent et al., 2015). Functionality refers to the degree of similarity of the task-constraints to constraints in the performance environment; action fidelity refers to the task-response by the performer as compared to real-time performance-response (Broadbent et al., 2015). Training in CrossFit teaches the body to do CrossFit, and develops the expertise in

CrossFit. However, it does not develop expertise and precision skills needed to be an elite athlete in other sports or in tactical fields. CrossFit's popular kipping and butterfly pull-ups are specific to CrossFit applications (Thibaudeau, 2014). In the CrossFit exercise demonstrations air squat, front squat, overhead squat, and thruster are shown using squats below 90 degrees (CrossFit, n.d.). While that may be fine for some, others biomechanically were never built to squat "deep" (e.g. shape of the acetabulum and femur), and deep squatting does not always directly transfer into the activity one is training for (Gorsuch et al., 2013; Lemberg & Nurmekivi, 2013).

The alternative to using CrossFit to train for sport/tactical operations is to actually train for sport/tactical operations (unless your sport is CrossFit). In order to train for sport/tactical operations, there is no cookie-cutter "program" (or blanket statement) as training must be designed to suit the individual's skill level and needs.

References

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