Evidence suggests that attentional bias plays a vital role in the continuation and relapsing to health threatening behaviors, such as substance abuse and unhealthy diet. We tested whether Food Attention Control Training Program (FACTP) can help overweight and obese people reduce their food-related attentional bias (FAB). All participants (N=49) were dieters randomly assigned into an experimental (training) group, a no-intervention control group, or a sham-intervention group; measures of attentional bias, eating styles, and hunger, and saliva were administered at pre-test, post-test, and follow-up assessment points. Results showed a significant reduction in the training group's FAB, and less diet withdrawals at the follow-up assessment. Also, for the training group, DEBQ emotional subscale scores were associated with greater reductions in their BMIs at post-training. Overall, the study showed that attentional bias plays an important role in dieting success and that FACTP can reduce the dieters' risk of drop-outs and help them to increase their dieting success, especially among those with emotional eating style.