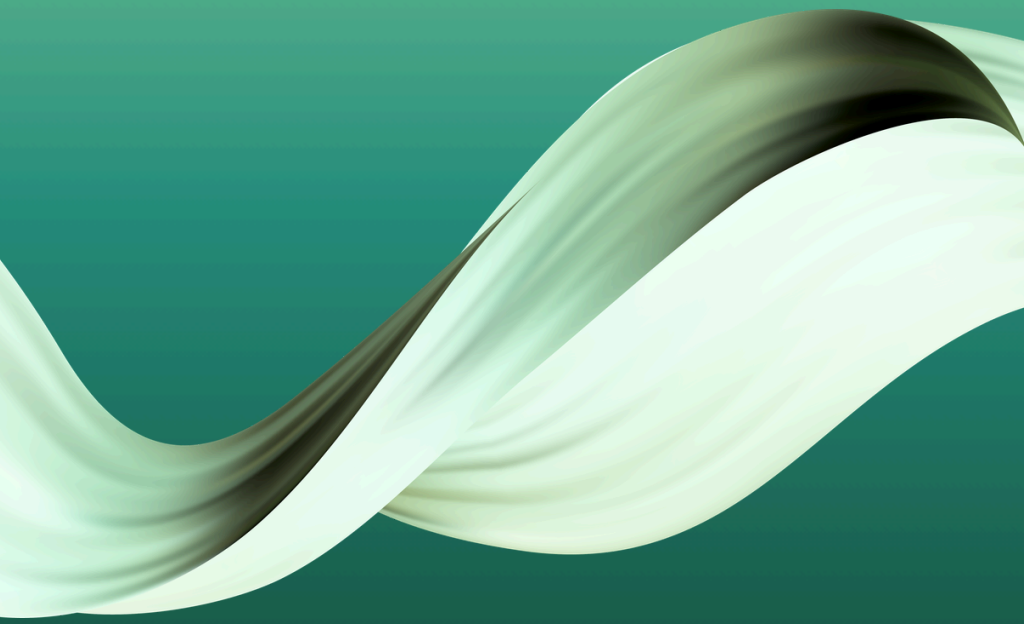
ALGORITHMIC HEARTBEATS

Affective Education in the Age of the Fourth Revolution



Edited by

FRANCESCO PELUSO CASSESE

PRESS

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Effects of hiit, liss, and pha on body composition: the role of standardized measurements and subjective perceptions in health promotion

Di Domenico Felice
Mazzeo Filomena

Exercise prescription has progressively evolved toward individualized approaches that consider not only physiological adaptations but also psychological responses and long-term adherence (1). Among the most frequently adopted training models in health-oriented fitness and personal training are High-Intensity Interval Training (HIIT), Low-Intensity Steady-State (LISS), and Peripheral Heart Action (PHA) training. These methodologies differ substantially in exercise intensity, workload distribution, metabolic demand, and neuromuscular involvement, potentially inducing different adaptive responses (2). Although previous studies have demonstrated positive effects for each modality, comparative evidence simultaneously examining body composition and psychophysical outcomes using standardized anthropometric procedures remains limited (3). Identifying modality-specific adaptations may assist exercise professionals in selecting the most appropriate intervention according to individual objectives and participant characteristics.

The aim of this study was to compare the anthropometric and psychophysical adaptations induced by HIIT, LISS, and PHA through an integrated analysis of three pilot studies conducted under comparable real-world supervised personal training conditions.

An integrated comparative analysis was performed on three quasi-experimental interventions involving 36 physically active adults (18 men and 18 women) allocated to HIIT (n = 12), PHA (n = 12), or LISS (n = 12). Pairwise comparisons (HIIT vs LISS, HIIT vs PHA, and LISS vs PHA) were derived from the same overall sample and therefore represent complementary analyses rather than independent experiments.

Each intervention lasted 12 weeks and consisted of three supervised training sessions per week. Exercise intensity was continuously monitored using Polar H9 heart-rate monitors to ensure adherence to the prescribed training zones. HIIT was performed at 80–95% of maximal heart rate, PHA at 70–80%, and LISS at 60–70%.

Anthropometric assessment followed International Society for the Advancement of Kinanthropometry (ISAK) standards and included body mass, body mass index, circumferences, skinfold thicknesses, adipose mass estimated using Kerr's model, muscle mass estimated using the Lee equation, and somatotype according to the Heath-Carter method. At the end of the intervention, participants completed a structured questionnaire exploring perceived psychological well-being, physical well-being, and perceived improvements in physical performance. Descriptive statistics were expressed as mean ± standard deviation. Depending on data distribution, within-group comparisons were performed using paired-samples t-tests or Wilcoxon signed-rank tests, whereas between-group differences were analysed using independent-samples t-tests, Welch's t-tests, or Mann–Whitney U tests, as appropriate. Differences in questionnaire responses were evaluated using Pearson's chi-square or Fisher's exact test. Statistical significance was set at $p < 0.05$.

All exercise modalities produced significant improvements in body composition after the 12-week intervention. Body mass decreased by 4.0% following HIIT, 4.45% following LISS, and 1.52% following PHA. Similar reductions were observed for BMI (−4.5%, −4.28%, and −1.72%). Adipose mass significantly decreased in all groups, confirming the effectiveness of structured exercise regardless of training modality.

However, important differences emerged in the adaptive profiles. HIIT showed the greatest tendency to preserve muscle mass (+0.47 kg), whereas slight reductions were observed following both PHA and LISS. Likewise, HIIT produced the largest reduction in endomorphy, suggesting greater effectiveness for body recomposition. PHA elicited balanced cardiovascular and neuromuscular

adaptations without reaching the magnitude of changes observed following HIIT. LISS produced anthropometric improvements comparable to HIIT for body mass reduction despite the substantially lower exercise intensity.
Subjective responses also differed among training modalities. Participants performing HIIT reported the highest perceived improvements in overall physical performance, strength, speed, and endurance. Conversely, individuals assigned to the LISS protocol reported significantly greater psychological well-being and more favorable perceptions of exercise tolerability, suggesting a higher potential for long-term adherence. PHA generally produced intermediate scores across both anthropometric and psychophysical outcomes.
The present integrated analysis demonstrates that HIIT, LISS, and PHA are all effective strategies for improving body composition in physically active adults, although each exhibits a distinct adaptive profile. HIIT appears particularly suitable for maximizing metabolic adaptations and preserving muscle mass, whereas LISS promotes greater psychological well-being and exercise adherence. PHA represents a balanced alternative combining cardiovascular and neuromuscular benefits. These findings support an individualized approach to exercise prescription based on both anthropometric goals and psychophysical responses, highlighting the value of standardized ISAK anthropometry for accurately assessing body composition changes.

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References:

Gibala, M. J., Little, J. P., Macdonald, M. J., & Hawley, J. A. (2012). Physiological adaptations to low-volume, high-intensity interval training in health and disease. The Journal of physiology, 590(5), 1077–1084.
Ensrud-Skraastad, O. K., & Haga, M. (2020). Associations between Motor Competence, Physical Self-Perception and Autonomous Motivation for Physical Activity in Children. Sports (Basel, Switzerland), 8(9), 120.
Theofilou P, Saborit AR. Adherence and Physical Activity. Health Psychol Res. 2013 Jan 25;1(1):e6.