CONCLUSION

In patients with T2DM, increased insulin resistance is strongly associated with lower testosterone levels and reduced beta-cell function. These findings highlight the interaction between metabolic dysfunction and hormonal status in middle-aged and elderly patients with T2DM.

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WHOLE-BODY PHASE ANGLE AS A MARKER OF CELLULAR HEALTH IN A WORKPLACE LIFESTYLE INTERVENTION

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INTRODUCTION

Phase angle (PhA) derived from bioelectrical impedance analysis reflects cellular integrity and has emerged as a potential marker of metabolic health. Its role in detecting early physiological changes during lifestyle intervention remains underexplored in workplace obesity programmes.

METHODOLOGY

This longitudinal study included 30 adults with complete paired measurements enrolled in a 12-month workplace lifestyle programme. Body composition was assessed using multifrequency bioelectrical impedance analysis. Measurements included whole-body PhA, body cell mass (BCM), skeletal muscle index (SMI), and extracellular water to total body water ratio. Paired comparisons and correlation analyses were performed.

RESULTS

Mean PhA increased modestly from 5.59 ± 0.70° to 5.67 ± 0.69°, although this did not reach statistical significance ($p = 0.17$). Changes in PhA were not significantly associated with changes in BCM ($r = -0.03$, $p = 0.89$). However, baseline PhA demonstrated a moderate positive association with SMI ($r \approx 0.51$, $p < 0.01$), suggesting a link between cellular integrity and muscle status. Individual trajectories revealed heterogeneous responses despite minimal weight change.

CONCLUSION

Whole-body phase angle provides insight into cellular health beyond conventional anthropometric measures. While short-term changes were modest, PhA may serve as a clinically useful adjunct for monitoring physiological response in obesity management programmes.

EP_A070

INTEGRATING BODY COMPOSITION AND BIOCHEMICAL MARKERS FOR METABOLIC RISK STRATIFICATION IN LIFESTYLE INTERVENTION

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INTRODUCTION

Obesity is a heterogeneous metabolic disease in which individuals with similar body weight may exhibit markedly different physiological risk profiles. Conventional monitoring using weight alone may fail to capture underlying metabolic and cellular changes during lifestyle intervention. Integrating body composition and biochemical markers may improve risk stratification in clinical practice.

METHODOLOGY

A prospective observational analysis was conducted among participants enrolled in a structured lifestyle programme. Baseline and follow-up assessments included biochemical markers (fasting glucose, renal function, lipid profile, and liver enzymes) alongside body composition parameters derived from bioelectrical impedance analysis, including percent body fat, visceral fat area, skeletal muscle index (SMI), and phase angle (PhA). Changes over time and associations between metabolic and body composition variables were analyzed.

RESULTS

Metabolic responses varied substantially despite similar anthropometric profiles. Renal function improved significantly, with increased estimated glomerular filtration rate (eGFR) observed over time ($p = 0.01$), and was inversely associated with fasting glucose ($r = -0.41$, $p < 0.01$). Lipid abnormalities persisted, although reductions in low-density lipoprotein cholesterol were noted ($p = 0.04$). Total cholesterol remained elevated and correlated positively with fasting glucose ($r = 0.36$, $p = 0.02$). Improvements in aspartate aminotransferase were observed ($p = 0.03$), while other liver markers remained stable. Notably, body composition parameters, including PhA and SMI, demonstrated variability independent of weight change, reflecting heterogeneous physiological adaptation.