METHODS: Twenty-eight women (mean age 43.23 ± 7.03 yrs) with rectus abdominis diastasis were randomised into an intervention (INT, 17 women) and control (CTRL, 11 women) group. INT underwent a 2-month HAG intervention, with one supervised HAG session per week, while CTRL was recommended to practice a 2-month home HAG. Both groups filled in the Mini Sleep Questionnaire (MSQ) to assess sleep subjectively and wore an actigraph to assess sleep objectively. MSQ and actigraphic assessment were performed one week before and one week after the HAG intervention. ANCOVA analysis (adjusted by age) evaluated differences in delta values between INT and CTRL groups.

RESULTS: Delta MSQ total score (INT: -2.67 ± 1.19 a.u.; CTRL: -0.94 ± 0.24 a.u.), delta sleep MSQ component (INT: -1.7 ± 0.92 a.u.; CTRL: -0.99 ± 0.74 a.u.), and delta wake MSQ component (INT: -0.97 ± 0.46 a.u.; CTRL: 0.05 ± 0.03 a.u.) showed a slightly greater reduction, indicating a sleep improvement, in INT group compared to the CTRL group. However, the differences were not statistically significant ($p = 0.67$, $p = 0.82$, $p = 0.63$, respectively). Among the actigraphic parameters, the delta percentages of sleep and immobile time were positive in the INT group (sleep time: 0.62 ± 0.35 %; immobile time: 0.43 ± 0.14 %) and negative in the CTRL group (sleep time: -0.38 ± 0.22 %; immobile time: -0.32 ± 0.25 %), indicating a trend of sleep improvement in the INT compared to the CTRL group. Also in this case, differences were not statically significant ($p = 0.49$, $p = 0.23$). No differences were visible for the percentage of sleep efficiency (INT: 1.48 ± 1.02 %; CTRL: 2.01 ± 1.49 %)

CONCLUSION: This pilot study shows that two-month HAG seems to contribute to some encouraging effects on sleep quality, showing some positive trends, especially on subjective sleep quality. However, no marked and significant results were visible, probably due to the shortness of the intervention protocol. A longer intervention and a bigger sample size could probably lead to more evident results.

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INTERACTION EFFECTS OF PHYSICAL ACTIVITY AND SLEEP DURATION ON MOTORIC COGNITIVE RISK SYNDROME IN CHINESE OLDER ADULTS: A POPULATION-BASED COHORT STUDY

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INTRODUCTION: Motor Cognitive Risk Syndrome (MCR) is a preclinical marker of dementia characterised by subjective cognitive complaints and slow gait [1]. Emerging evidence suggests that modifiable lifestyle factors are potential targets for intervention, with sleep patterns receiving particular attention. A prior study in Chinese older adults revealed an inverted U-shaped association between night sleep duration and MCR [2]. However, the role of physical activity (PA) in the pathogenesis of MCR remains unexplored. We hypothesise that higher activity levels interact with healthy sleep status to reduce MCR risk, rather than their independent effects.

METHODS: We recruited 2,459 participants aged≥60 years from the China Health and Retirement Longitudinal Study (CHARLS). MCR syndrome was defined as cognitive complaints and slow gait speed without dementia or impaired mobility. PA was classified into three categories based on the IPAQ rubric: inadequate (< 600 MET-min/week), adequate (600-3000 MET-min/week), and high (> 3000 MET-min/week). Sleep was classified as inadequate (< 6 hours), adequate (6-9 hours), and excessive (> 9 hours). Multivariable logistic regression examined cross-sectional PA-sleep interactions on MCR prevalence, while Cox models assessed longitudinal associations with incident MCR over 3.5-year follow-up (2011-2015 waves), both adjusting for age, gender, education, smoking, alcohol, depression symptoms and chronic diseases.

RESULTS: In cross-sectional analyses (n=2,459), the combination of inadequate PA and short sleep duration demonstrated interaction effects, showing 2.5-fold higher odds of MCR in unadjusted models (OR: 2.53, 95% CI: 1.98–3.24, $p<0.001$), which remained significant after full adjustment (aOR: 2.18, 95% CI: 1.68–2.83, $p<0.001$). Longitudinal analysis (n=1,793, median follow-up 3.5 years) revealed that participants with both risk factors at baseline had 1.7-fold higher incidence risk in unadjusted models (HR: 1.73, 95% CI: 1.28–2.33, $p<0.001$), with risk persisting after adjustment (aHR: 1.49, 95% CI: 1.09–2.04, $p=0.013$). The multiplicative interaction term between PA and sleep duration was statistically significant ($p=0.021$).

CONCLUSION: As hypothesized, the combined optimization of physical activity and sleep duration significantly attenuates the MCR risk in older adults, with multiplicative interaction effects surpassing those of the individual factors. Community-based dual-component interventions targeting both behaviors should be implemented, while future studies need to identify subgroups benefiting most from such strategies.

References:

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derscore the importance of position-specific training strategies that optimally prepare backcourt and frontcourt players for the specific game loads.

KINEMATIC VARIABLES AND MATCH OUTCOMES IN SERIE A: THE IMPACT OF ACCELERATION AND SPRINT DISTANCE

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INTRODUCTION: The influence of kinematic variables on the outcome of the match has not been extensively investigated, especially in the Italian First Division. Our objective is to fill this gap by analyzing key performance indicators derived from tracking data, focusing on how these metrics relate to different match results (win, draw, loss). This study aims to explore how kinematic, mechanical, and metabolic parameters influence match outcomes in the Italian Serie A during the 2022/2023 and 2023/2024 seasons.

METHODS: We employed a multinomial logit model to evaluate the probability of various match outcomes based on differences in physical metrics between competing teams. The response variable included three categories: win (W), draw (D), and loss (L), with the loss serving as the reference category. Key variables analyzed were Total Distance Covered (Diff_TDC), High-intensity acceleration distance (>3 m/s²; Diff_D_H-acc), sprint distance (> 25 km/h; Diff_D_VHSR), and Metabolic Power High-Intensity (Diff_D_MPHI).

RESULTS: Our findings indicate that Diff_H-acc and Diff_VHSR have a stronger impact on the probability of winning compared to drawing. In both leagues analyzed, these variables are significant when considering the "Win" category. However, for the "Draw" estimates, the p-values are slightly exceeded 0.05, with Diff_D_VHSR showing an even higher value in the 2023/24 season. This suggests that while these two variables have a relatively small influence on the probability of drawing versus losing, they significantly affect the probability of winning versus losing. Specifically, for the 2022/23 season, a 10-meter increase in the difference between the distances covered at high speed by the two teams raises the probability of winning by approximately 12.45%. In the 2023/24 season, the same increase in the explanatory variable leads to a rise of about 17.89%. In contrast, the impact of Diff_D_H-acc on the probability of success is more pronounced. Based on the estimated coefficients, in the first season, a 10-meter increase results in a probability increase of more than 46%. For the 2023/24 season, the probability of winning versus losing rises by approximately 33.6%.

CONCLUSION: From an applied perspective, our results underscore the importance of high-intensity actions, particularly accelerations, in influencing match outcomes. This insight aligns with existing literature emphasizing the tactical value of aggressive pressing and rapid transitions. Coaches and performance analysts can leverage these findings to prioritize training interventions that enhance players explosive capabilities, potentially leading to improved competitive performance. By integrating advanced statistical modeling with applied performance analysis, this study contributes to a deeper understanding of the physical demands in elite soccer and their relationship to tactical success in Serie A.

TRENDS IN HIGH-INTENSITY RUNNING PERFORMANCE: A COMPARATIVE ANALYSIS OF PLAYERS IN THE FIFA WOMENS WORLD CUP

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INTRODUCTION: High-intensity running (HIR) is a key performance metric in modern football. However, research on HIR in the FIFA Womens World Cup remains limited[1]. This study analyzes 2019-2023 HIR trends using 2023 FIFA Womens World Cup post-match reports and FIFA research. Findings offer scientific insights to support coaches in optimizing training programs.

METHODS: Data were sourced from the 2019 FIFA World Cup Physical Report and 2023 FIFA Post-Match Summary Reports (116 matches).The analysis focused on full-match players HIR metrics across positions: goalkeepers (GK), forwards (FW), midfielders (MF), and defenders (DF), including total distance, high-speed running (Zone 4: 19-23 km/h), sprint running (Zone 5: >23 km/h), and HIR (>19 km/h). Statistical analysis utilized IBM SPSS Statistics 27 for 2023 data (Kruskal-Wallis and Mann-Whitney U tests, $p < 0.05$). For 2019 data, only percentage changes were calculated due to missing variance and sample size information.

RESULTS: GK showed a 10.8% decrease in total distance (2019: 5028m; 2023: 4485m), while Zone 4 running increased by 8.3% (2019: 24m; 2023: 26m). Both Zone 5 (2019:6m; 2023:4m) and HIR (2019:30m; 2023:29m) showed minimal changes.

DF showed a 2.1% decrease in total distance (2019: 9,933m; 2023: 9,725m), while Zone 4 running decreased by 5.9% (2019: 425m; 2023: 400m). Zone 5 distance showed minimal change (2019: 164m; 2023: 161m), and HIR decreased by 4.8% (2019: 589m; 2023: 561m).

MF showed minimal change in total distance (2019: 10,717m; 2023: 10,669m), while Zone 4 running decreased by 11% (2019: 526m; 2023: 468m). Zone 5 distance declined by 24.6% (2019: 183m; 2023: 138m), and HIR decreased by 14.5% (2019: 709m; 2023: 606m).

FW showed a slight increase in total distance (2019: 10,267m; 2023: 10,286m), with Zone 4 running increasing by 2.1% (2019: 530m; 2023: 541m). Zone 5 distance increased by 18.2% (2019: 220m; 2023: 260m), and HIR rose by 6.8% (2019: 750m; 2023: 801m).