

Common predictors of return to work after cardiovascular diseases: a new perspective through occupational cardiology

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This editorial refers to ‘Common predictors of return to work across cardiovascular diseases’, by E. Tisseghem et al., <https://doi.org/10.1093/eurjpc/zwaf508>.

Return to work (RTW) after cardiovascular disease (CVD) is far more than a clinical milestone: it is a marker of recovery, societal participation, economic resilience, and psychological well-being. While recent evidence has identified key predictors of RTW across different cardiovascular conditions, this editorial expands on those insights by highlighting the emerging role of occupational cardiology—a field that integrates clinical, psychosocial, and workplace dimensions to support reintegration.¹

The review by Tisseghem et al.¹ represents a timely and ambitious attempt to clarify the determinants of RTW after CVD. Their aim was to identify common predictors across various CVDs, offering clinicians and policymakers a broader framework for vocational reintegration. The authors conducted a systematic ‘review of reviews’, ultimately including 28 analyses on acute coronary syndrome (ACS), chronic coronary artery disease (CCAD), heart failure (HF), and stroke.

The results highlight that RTW after CVD is determined less by the index disease itself than by common, largely modifiable factors. Across the included reviews, functional capacity, psychological well-being, workplace characteristics, and social support consistently emerged as stronger predictors than disease severity or treatment modality. At the same time, disease-specific barriers were evident—for instance, cognitive and motor sequelae in stroke or exercise intolerance in HF—underscoring the need for both general and tailored rehabilitation strategies. Importantly, the identification of workplace accommodations and psychosocial support as critical determinants points directly to actionable intervention targets for clinicians, employers, and policymakers.

A crucial issue raised by this review is the conceptual and definitional heterogeneity of RTW. The included studies varied considerably: some defined RTW as any resumption of paid employment, irrespective of workload or contract type; others required a return to the same job and full duties, while several accepted partial or graded return (reduced hours, modified responsibilities) as a successful outcome. Such

variability complicates comparisons and raises a deeper conceptual question: *what does it mean to ‘return to work’ after a cardiovascular event?* For patients, even a partial return may represent autonomy, social inclusion, and psychological recovery. From a public health perspective, however, reduced hours or occupational downgrading may still entail significant societal and economic costs. Moreover, RTW is often a dynamic process rather than a binary event: patients may resume work with restrictions, progress towards full reintegration, or conversely experience setbacks and recurrent absences. This highlights the need for standardized, multidimensional definitions of RTW, capturing not only the timing (early vs. delayed) but also the intensity (part-time vs. full-time), sustainability (maintenance of work over time), and quality (job satisfaction, alignment with pre-morbid role).

Among the strengths of this review are its wide scope, the integration of multiple diseases under a unifying conceptual framework, and its practical orientation. The explicit use of the International Classification of Functioning, Disability and Health (ICF) framework is particularly valuable, shifting the narrative from a purely biomedical recovery towards a biopsychosocial understanding of RTW. The emphasis on modifiable contextual factors provides a strong rationale for interventions that extend beyond traditional rehabilitation. Finally, the systematic application of A Measurement Tool to Assess Systematic Reviews (AMSTAR)-2 quality appraisal lends robustness to the synthesis. Nevertheless, the study has clear limitations. The reliance on secondary evidence means the conclusions are constrained by the quality of the underlying reviews, many of which included heterogeneous or low-quality primary studies. The inconsistent definitions of RTW represent a major challenge, limiting comparability and undermining the possibility of pooled estimates. Certain groups remain underrepresented—women and HF patients in particular—raising concerns about the generalizability of findings. Additionally, although both qualitative and quantitative predictors were summarized, the lack of uniform effect size reporting restricted meta-analytic conclusions.

The opinions expressed in this article are not necessarily those of the Editors of the *European Journal of Preventive Cardiology* or of the European Society of Cardiology.

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Connecting return to work and occupational cardiology

These findings align with the emerging discipline of occupational cardiology, which reframes the workplace as both a site of cardiovascular risk and an arena for prevention and reintegration.^{2–4} This perspective emphasizes that successful RTW is not solely a product of medical recovery but also a reflection of how effectively occupational environments adapt to and support individuals with CVD.

Occupational cardiology focuses on two complementary dimensions.^{2–4} First, it addresses high-hazard professions—such as aviation, military, and first responders—where cardiovascular risk carries implications not only for the individual worker but also for public safety. In these contexts, nuanced cardiovascular evaluation is essential, both in terms of primary prevention (risk factor detection and monitoring) and secondary prevention (tailored reintegration and role adaptation after a cardiac event).⁵ Second, it encompasses corporate wellness and workplace-based prevention programmes, which have gained increasing traction in recent years.^{2–4} These initiatives—endorsed by the European Society of Cardiology and supported by growing empirical evidence—seek to reduce the cardiovascular burden in the general workforce through integrated interventions in the occupational setting. Screening, health education, structured exercise, stress management, and digital health tools represent core components of these programmes.⁶

This integrated perspective positions RTW as a benchmark for the quality of cardiovascular prevention and rehabilitation. It reflects not only individual resilience but also the collaboration of healthcare systems, employers, and occupational health professionals.⁷

Return to work also functions as a determinant of long-term cardiovascular health: reintegration supports physical activity, psychological stability, and social engagement. In contrast, prolonged absence or permanent disability may promote sedentary behaviour, isolation, and financial stress, worsening outcomes.⁷

Placing RTW within occupational cardiology expands its relevance for public policy. Employers and decision-makers can leverage predictors—functional capacity, psychosocial well-being, workplace characteristics, and social support—to design sustainable, worker-centred policies.

The integration of Tisseghem *et al.*'s findings with occupational cardiology leads to several implications:

- (1) **Early identification of at-risk workers:** Traditional post-CVD follow-up often emphasizes medical stabilization, overlooking psychosocial and occupational risk factors that strongly predict RTW. Routine screening for psychological distress, reduced functional capacity, and inadequate workplace support should be systematically embedded into cardiac rehabilitation and outpatient care. These domains can be assessed with validated instruments (e.g. Hospital Anxiety and Depression Scale, Work Ability Index), and early detection may allow tailored interventions, preventing long-term work disability.⁵
- (2) **Multidisciplinary and workplace-inclusive rehabilitation:** Cardiac rehabilitation has traditionally focused on exercise, education, and secondary prevention. However, the evidence summarized by Tisseghem *et al.* demonstrates that multidimensional care—involving cardiologists, occupational physicians, psychologists, physiotherapists, and employers—enhances RTW outcomes. Joint reintegration plans that align medical recovery with occupational demands foster smoother transitions back into the workplace. Examples include graded RTW schemes,

job modifications, and flexible schedules, which improve adherence and sustainability.^{8,9}

- (3) **Work settings as prevention hubs:** Workplaces can be leveraged as strategic environments for primary and secondary cardiovascular prevention. Evidence shows that well-designed wellness programmes—integrating risk factor education, structured physical activity, dietary guidance, smoking cessation, and stress management—can yield substantial returns. Economic analyses suggest that such programmes save \$3–6 per \$1 invested, through reductions in absenteeism, presenteeism, and healthcare costs.¹⁰ Importantly, these programmes also foster a culture of health, enhancing productivity and employee satisfaction while promoting equitable access to prevention.
- (4) **Adopting Total Worker Health frameworks:** The US National Institute for Occupational Safety and Health (NIOSH) has promoted the *Total Worker Health* concept, which integrates occupational safety, health promotion, and psychosocial support. Applying this model to CVD survivors may strengthen both recovery and long-term employability, as it addresses the continuum of health determinants—from clinical stability to workplace culture.¹

Collectively, these implications shift the paradigm of CVD rehabilitation from a clinically centred approach towards an intersectoral strategy where health systems, employers, and policymakers share responsibility for ensuring successful RTW.

Despite these insights, challenges remain. Definitions of RTW vary widely, hindering synthesis. Women are underrepresented in RTW research, limiting generalizability. Longitudinal data on RTW sustainability, recurrence of sick leave, and productivity loss are lacking. Occupational Cardiology itself remains a young field, with few standardized protocols or large-scale trials.⁶

Future research should:⁶

- Develop predictive models combining clinical, psychosocial, and occupational variables to anticipate RTW trajectories
- Validate community and workplace-based interventions across different organizational and national contexts
- Examine whether common RTW predictors identified in CVD can be extrapolated to other chronic diseases such as diabetes or chronic kidney disease

Addressing these gaps will be crucial to transform RTW from a desirable outcome into a standard metric of success in cardiovascular care.

Tisseghem *et al.*'s 'review of reviews' provides crucial insights into RTW determinants after CVD. By embedding these findings within occupational cardiology, we broaden their significance: RTW becomes a shared responsibility among clinicians, employers, and policymakers. This integrative approach offers a pathway to improve quality of life, preserve employability, and reduce the societal impact of cardiovascular disease.

Author contribution

A.B. and F.F. contributed to the conception and design of the work. S.P. drafted the initial version of the manuscript. All authors critically revised the content, gave final approval, and agree to be accountable for all aspects of the work ensuring integrity and accuracy.

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