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Biomarkers of Dairy Fat Intake, Incident Cardiovascular Disease, and All-Cause Mortality: A Systematic Review and Meta-analysis

S. Bhat^{1,*}, K. Trieu², Z. Dai^{3,4}, K. Leander⁵, B. Gigante⁵, F. Qian^{6,7}, A. Korat⁷, Q. Sun^{6,7}, X. Pan^{2,8,9}, F. Laguzzi⁵, T. Cederholm¹⁰, U. de Faire⁵, M. Hellénus⁵, J. Wu², U. Risérus¹⁰, M. Marklund^{2,10,11}

¹ University of Western Australia, Crawley, WA, Australia

² The George Institute for Global Health, Sydney, NSW, Australia

³ Macquarie University, Sydney, NSW, Australia

⁴ University of Sydney, Sydney, NSW, Australia

⁵ Karolinska Institute, Stockholm, Sweden

⁶ Harvard T.H. Chan School of Public Health, Boston, MA, USA

⁷ Harvard Medical School, Boston, MA, USA

⁸ Vanderbilt University Medical Centre, Nashville, TN, USA

⁹ Huazhong University of Science and Technology, Wuhan, China

¹⁰ Uppsala University, Uppsala, Sweden

¹¹ Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Background: Cardiovascular disease (CVD) is the leading cause of mortality worldwide. There is now growing evidence that the type and dietary source of fat may be more important for CVD risk than the total amount of fat intake. We investigated the association of serum dairy fat biomarkers (15:0, 17:0, and Σ 16n-7) with incident CVD and all-cause mortality in a systematic review and meta-analysis.

Methods: A systematic literature search was conducted in Medline, Embase, Scopus, Web of Science, and Cochrane databases to identify prospective observational human studies that examined the association between circulating or adipose tissue levels of dairy fat biomarkers with CVD incidence and all-cause mortality. Pooled associations of 15:0, 17:0, and Σ 16:1n-7 with CVD outcomes and all-cause mortality were estimated using random effects meta-analysis.

Results: Eighteen studies were included in the systematic review. In pooled analyses, higher serum levels of 15:0 and 17:0 but not Σ 16n-7 were inversely associated with total CVD, a composite outcome that included coronary artery disease, stroke, and heart failure. The relative risk of CVD events in individuals in the highest versus lowest tertiles of 15:0, 17:0, and Σ 16:1n-7 were 0.88 (0.78, 0.99), 0.86 (0.79, 0.93), and 1.01 (0.91, 1.12), respectively.

Conclusions: In a meta-analysis of 18 prospective observational studies, higher levels of 15:0 and 17:0 were associated with lower CVD risk. Our findings support the need for clinical and experimental studies to elucidate the causality of these relationships and relevant biological mechanisms.

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Cardiac Rehabilitation During COVID-19 in Victoria, Australia: Telehealth is Here to Stay but it is Not Without Challenges. A Focus Group Study

S. Cartledge^{1,2,*}, J. Rawstorn², P. Ryan³, M. Tran⁴, E. Howden⁵, A. Jackson^{6,7,8}

¹ School of Public Health and Preventive Medicine, Monash University, Melbourne, Vic, Australia

² Institute for Physical Activity and Nutrition, Deakin University, Geelong, Vic, Australia

³ Heart Foundation, Melbourne, Vic, Australia

⁴ St Vincent's Hospital, Melbourne, Vic, Australia

⁵ Baker Institute, Melbourne, Vic, Australia

⁶ Australian Centre for Heart Health, Melbourne, Vic, Australia

⁷ Faculty of Health, Deakin University, Geelong, Vic, Australia

⁸ Centre on Behavioural Health, The University of Hong Kong, Pok Fu Lam, Hong Kong

Background: Cardiac rehabilitation (CR) education and exercise are predominantly delivered in group face-to-face settings. This delivery model was challenged during the COVID-19 pandemic in Victoria. The experience, barriers, and enablers of delivering CR during a pandemic, and identified strategies for future COVID-safe programs were explored among clinicians in this study.

Methods: Victorian members of the Australian Cardiovascular Health and Rehabilitation Association (ACRA) were invited to attend an exploratory qualitative online focus group in November 2020. An inductive thematic analysis was undertaken before deductively applying the Non-adoption, Abandonment, Scale-up, Spread and Sustainability (NASSS) framework to identify barriers and enablers for technology adoption in CR.

Results: 30 members participated in a 106-minute focus group. 17 members who provided demographics represented multiple disciplines (nursing, n=13; exercise physiology, n=3; physiotherapy, n=1) and geographical settings (metropolitan, n=10; regional, n=4; rural, n=3). Four main themes were identified: Consequences of sudden service delivery change; Technology use—challenges and benefits; Capacity (program and staff); and The way forward. The deductive NASSS analysis demonstrated the main challenges of continuing remotely delivered CR lie with all adopters (staff, patients, carers) and with organisations. Future CR strategies included the importance of resuming face-to-face programs but finding capacity, particularly staffing, to run concurrent telehealth programs.

Conclusions: The COVID-19 pandemic forced and expedited significant changes to CR delivery models. While clinicians agreed that delivery of CR via telehealth will continue, it is now timely to review remote models of care and plan how they will integrate alongside traditional face-to-face programs.

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