

METHODS: An experience-based co-design approach was used, collaborating with three KU groups: 1) patient/family partners; 2) oncology healthcare providers (physicians, nurses, allied health); and 3) community-based exercise professionals (physiotherapists, exercise physiologists). Through facilitated meetings, KT product ideas were generated, prioritized, and co-created and a dissemination strategy was discussed.

RESULTS: Twenty-nine KUs participated in four engagement sessions ($n = 10$ patient/family partners, $n = 9$ healthcare providers, and $n = 10$ exercise professionals). The KT products prioritized for development were: 1) a patient education handout; 2) patient education videos; 3) a clinical communication tool; and 4) professional development materials for exercise professionals and healthcare providers. The dissemination plan will involve partnerships with target organizations (e.g., Canadian Cancer Society).

CONCLUSIONS: Collaborating with KUs through experience-based co-design has enabled the development of KT products likely to be more useful and acceptable to the intended audience than those designed by researchers alone. Our KT products can support people with bone metastases to engage in exercise safely and increase the satisfaction of oncology healthcare providers and exercise professionals in what information and resources they can offer patients. With our product launch, we will evaluate the reach, use, and partnership indicators of the KT products and dissemination plan.
Canadian Cancer Society and Michael Smith Health Research BC

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Accelerometry-derived Moderate-to-vigorous Physical Activity Predicts Overall Survival In Patients With Cancer In The Pleural Space

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Cancer in the pleural space or malignant pleural effusion (MPE) is an incurable disease with high symptom burden of debilitating fatigue and breathlessness. Due to heterogeneity of disease and clinical factors, predicting survival outcomes in MPE is complex and often inaccurate.

PURPOSE: To investigate the association of accelerometry-derived moderate-to-vigorous physical activity (MVPA) with 3-year overall survival (OS) in patients with MPE.

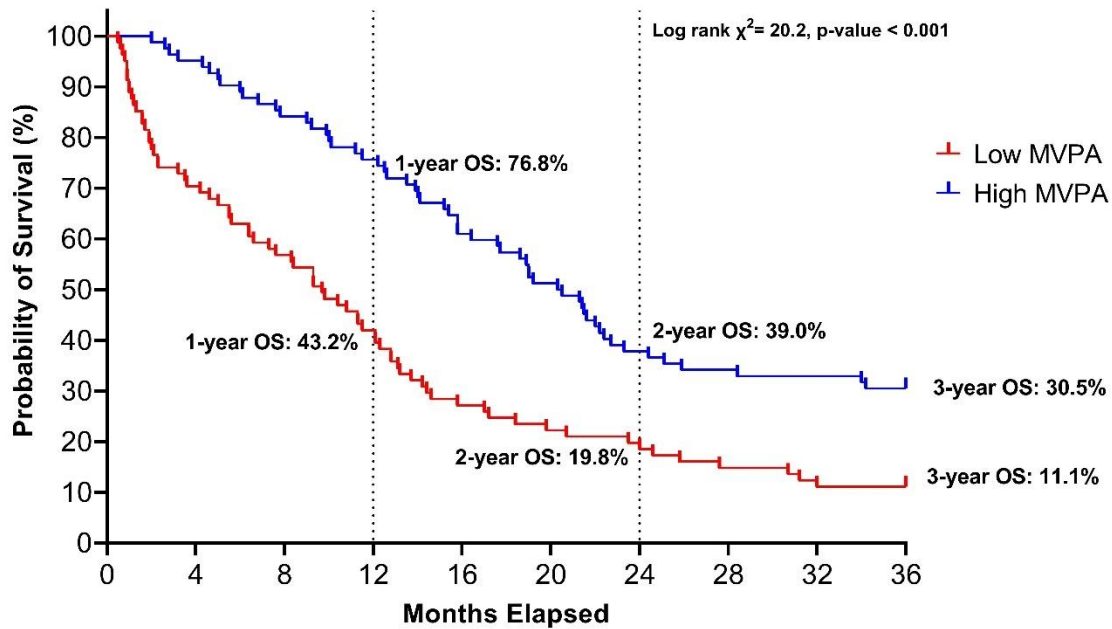
METHODS: This is a pooled analysis of 5 studies in patients with MPE. MVPA was measured using Actigraph GT3X+ (7-day wear protocol). Medical, demographic and survival information were collected from medical records. Participants were divided into high ($n=81$, median of 13.1 [interquartile range (IQR): 8.5; 30.2] min/day) and low MVPA ($n=81$, median of 1.4 [IQR: 0.3; 3.0] min/day) based on median values. Cox regression analysis (hazard ratio [HR] and 95% confidence intervals [CI]) and Kaplan-Meier method were undertaken to explore the association of MVPA with 3-year OS.

RESULTS: A total of 163/222 MPE patients (mean age: 67.1 ± 10.0 years) were included. The majority were male (66%) with a diagnosis of mesothelioma (58%). With 57 and 72 deaths in the high and low MVPA group, respectively, an unadjusted HR of 0.46 (95% CI: 0.32-0.65, $p < 0.001$) was observed for the high MVPA group. Median 3-year OS for the high MVPA group was 20.4 (95% CI: 15.8-23.3) months vs. 9.7 (95% CI: 6.4-12.3) months in low MVPA (Figure 1; $p < 0.001$). An adjusted HR of 0.57 (95% CI: 0.35-0.95, $p < 0.05$) was observed for patients with higher MVPA after controlling for Eastern Cooperative Oncology Group status (0-3), age, sex, cancer type, serum albumin, enrolled trial, waking wear time, sedentary and light physical activity time.

CONCLUSION: Accelerometry-derived MVPA is a meaningful prognostic marker and could be an important target for future interventions in patients with MPE.

Figure 1. Kaplan-Meier 3-year overall survival curve stratified by low and high MVPA.

3-year overall survival



High MVPA	82	79	70	63	53	43	32	29	28	25
Low MVPA	81	58	47	35	23	19	16	13	10	9

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Relationships Between Exercise-Induced Changes In Dietary Intake And Physiological Fitness In Adults With Chronic Lymphocytic Leukaemia

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PURPOSE: Although the risk of chronic lymphocytic leukaemia (CLL) is influenced in part by dietary choices, there is insufficient evidence of how dietary intake affects the health and well-being of adults with CLL. We aimed to determine the relationships between diet and physiological fitness before and after an exercise intervention in treatment naïve (TN) and treated (Td) adults with CLL.

METHODS: Fifteen adults [5F/10M; aged 66.4 years (range: 51-79 years)] with TN (N=8) or Td (N=7) CLL completed a randomised control trial of a 12-week aerobic and resistance training intervention (EXE) or no exercise (CON). Alongside high-resolution physiological assessments and disease activity measures (e.g., white blood cell counts), we determined in-depth 7-day nutritional intake using food diaries. We calculated average nutritional intake and intervention changes in levels of total energy, total carbohydrate, protein, fibre, total fat, saturated fat, monounsaturated fat, and polyunsaturated fat for each participant. We used repeated measures ANOVA and correlations to determine changes and relationships, respectively.

RESULTS: Compared to CON, EXE groups increased upper ($17.5 \pm 12.1\%$, $p < 0.05$) and lower body ($21.3 \pm 12.0\%$, $p < 0.05$) muscle strength. EXE groups exhibited increased time to exhaustion ($11.0 \pm 5.2\%$, $p = 0.05$) and anaerobic threshold ($19.5 \pm 11.3\%$, $p = 0.001$), with trends for increased relative ($7.3 \pm 8.19\%$, $p < 0.09$) and absolute VO_{2peak} ($5.8 \pm 6.6\%$, $p < 0.09$). Nutritional intake did not change from baseline to 12-weeks ($p > 0.05$). Larger reduced total energy intake and total fat intake were associated with increased absolute ($r = -1.00$, $p < 0.001$) and relative ($r = -0.995$, $p = 0.005$) VO_{2peak} . Reduced saturated fat intake ($r = -0.988$, $p = 0.012$) drove the associations with increased VO_{2peak} . Reduced carbohydrate ($r = -0.979$, $p = 0.021$) and saturated fat intake ($r = -0.983$, $p = 0.017$) were associated with increased maximal upper body strength. Reduced total fat intake was associated with larger reductions in total white blood cell numbers ($r = -0.956$, $p = 0.044$).

CONCLUSION: Reduced fat intake is associated with better fitness responses in CLL. Given CLL cells' energy requirements are lipid-dependent, this data may reflect the possible mechanisms of how exercise benefits CLL by redirecting lipids to healthy tissue. Funded by the American Society of Hematology

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Immediate Versus Delayed Exercise In Patients Initiating Androgen Deprivation Therapy: Effects On Quality Of Life

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