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Aerobic exercise leads to a greater mobilization of CD8+ T cells and NK cells compared to resistance exercise

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Exercise leads to reduced symptoms, enhanced physical functioning, improved quality of life, enhanced treatment efficacy, and better overall survival in patients with solid tumors. One of the suggested mechanisms is the modulation of the immune function. During acute exercise, immune cells, and especially CD8+ T cells and NK-cells, are mobilized into the circulatory system. The redistribution of these immune cells after exercise has not been characterized in depth. It has however been hypothesized that the mobilized immune cells migrate to tumor sites and become tumor infiltrating lymphoid cells (TILs), contributing to a more favorable prognosis. Here we compare the effect of aerobic exercise (AE) and resistance exercise (RE) on this mobilization and markers of homing and function.

Blood samples were obtained from healthy volunteers pre, post and 30 minutes after acute endurance and resistance exercise in a cross over design. PBMCs were isolated and analyzed with multicolor flow cytometry. Immune cell function was analyzed using viral peptides.

Our preliminary data illustrates that both exercise types lead to an increased frequency of cytotoxic subsets of CD8+ T cells and NK cells. However, aerobic exercise (AE) lead to a greater mobilization compared to resistance exercise (RE), potentially due to the difference in intensity. Characterization of markers of homing and function are ongoing. Current experiments focus on whether the enhanced mobilization is reflected also in the expression of homing markers and cytotoxic function.

The proposed research will provide novel information the effect of different exercise modalities on immune cell recruitment, homing and function, informing exercise intervention designs.

Keywords

Exercise, immune function, homing, functionality

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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