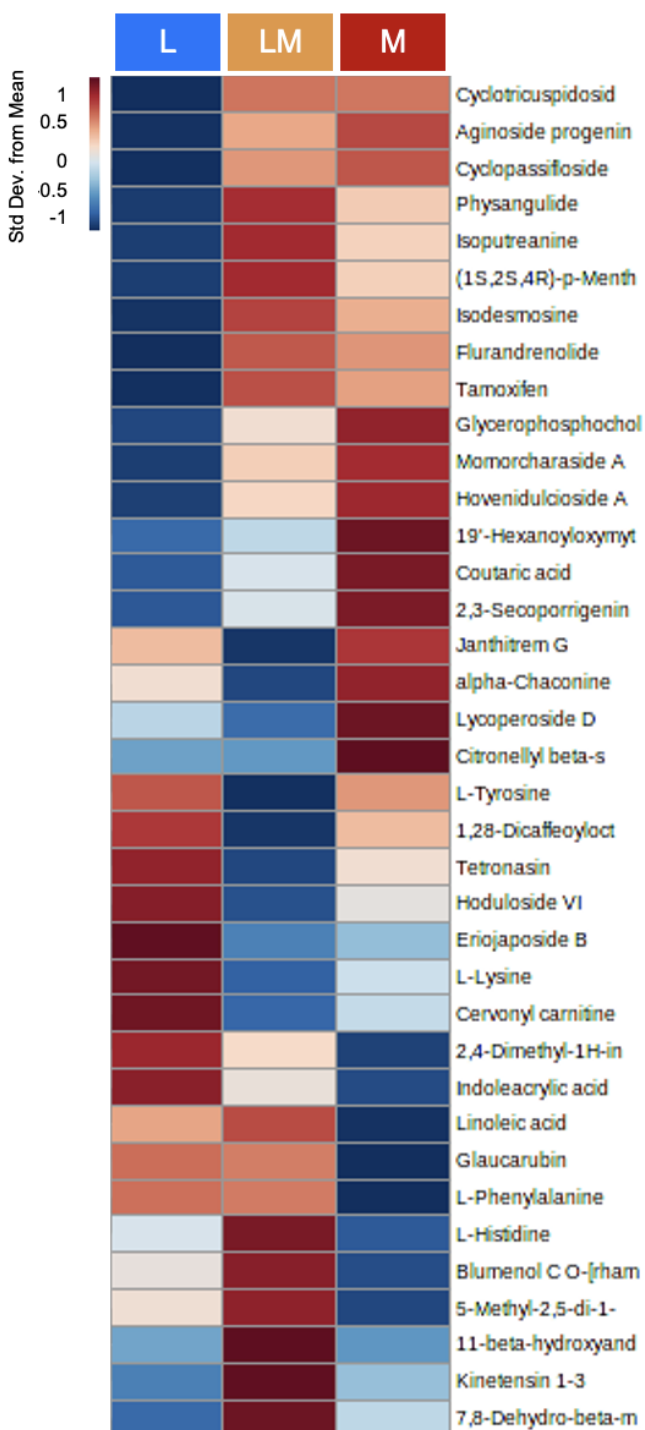
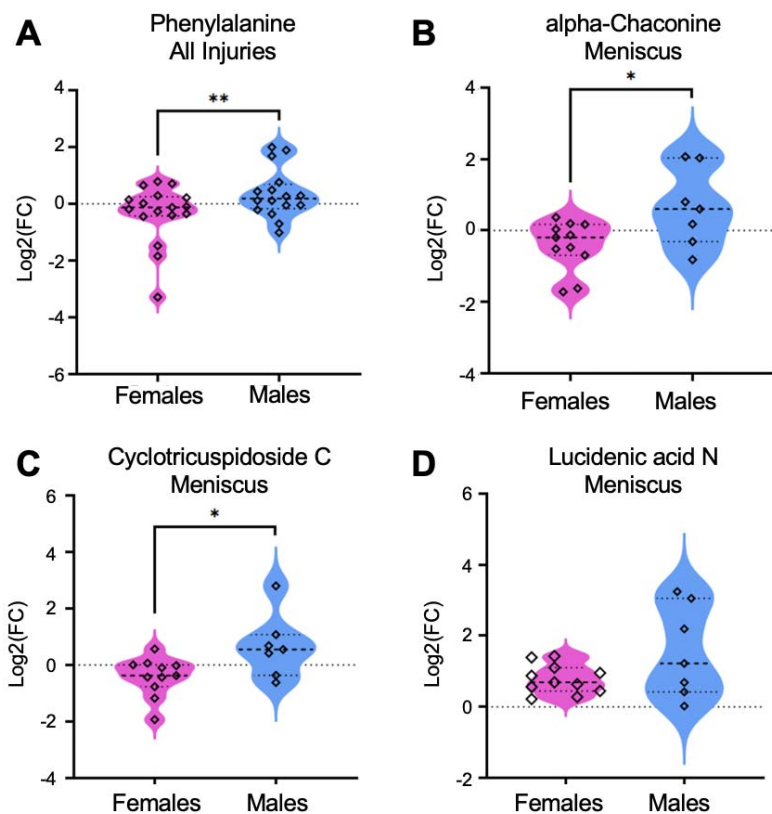


**Supplementary Figure 1. Global profiles considering all detected metabolite features are similar across injury pathologies.** Unsupervised and supervised multivariate analyses display overlap in the global profiles of different injury pathologies. (A) PCA, an unsupervised test, shows significant overlap when considering all 7,794 features. PC1 and PC2 combined account for 44.6% of the variability in the dataset. (B) PLS-DA, a supervised test, shows less overlap of groups. Components 1 and 2 account for 33.3% of the variability of the dataset. These two tests combined suggest that global profiles generated by all metabolite features detected do not differ and that additional analyses are required to pinpoint specific phenotypic changes. The colors in A and B correspond to: Ligament injuries - light blue; Meniscal injuries - orange; Ligament and Meniscal injuries - red. L = ligament injuries. M = meniscal injuries. LM = ligament and meniscal injuries.



**Supplementary Figure 2.** All putative metabolite identifications visualized by a heatmap. Warmer colors (red) indicate higher abundance, while cooler colors (blue) indicate lower abundance.



**Supplementary Figure 3. Concentration of identified metabolites differ in concentration between male and female participants and those with meniscal injuries.** Using fold change and volcano plot analyses and MS<sup>E</sup> data, populations of metabolites deemed significant were searched against identified metabolites. Of these, (A) Phenylalanine was in higher abundances in all male participants compared to females. (B) Alpha-Chaconine, (C) Cyclotricuspidoside C, and (D) Lucidenic acid N were highest in abundance in males with meniscal injuries compared to females with this same injury. Mass-to-charge intensities of interest were normalized and used to generate plots. To correct for multiple comparisons, FDR p-value corrections were performed and were less than < 0.05. Unpaired t-tests were performed in Graph Pad Prism. \*\*Indicates p-value < 0.01 and \*indicates p-value < 0.05. The colors in A-B correspond to male and female participants: pink – females, blue – males.