Figure S1 Entangle-grams comparing dendrograms by injury mechanism. (A) Anterior to posterior positions bilaterally. (B) Rib number on right side. (C) Rib number on left side. MCC dendrograms are represented on the left side and the MVC condition dendrogram is represented on the right side. High degree of entanglement (closer to 1) was regarded as poorer alignment whereas lower scores (closer to 0) were considered better fit. The entangle-gram demonstrates modest similarity in terminal branch clustering for anterior-posterior positions with a co-efficient of 0.46 and congruent terminal branches of bilateral anterior positions and bilateral anterior-lateral positions (A). The left side of the ribwise dendrogram comparisons yielded higher agreement than the right side in terminal branching between MCC and MVC conditions. On the right side, there was an entanglement co-efficient of 0.75 for similarity in branching overall, but no instances of identical terminal branch clustering between ribs (B). On the left side, there was an entanglement co-efficient of 0.77, with similarities between terminal branch clustering of ribs 4 through 7, and ribs 11 and 12 between the two conditions (C). MCC, motorcycle collision; MVC, motor vehicle collision.
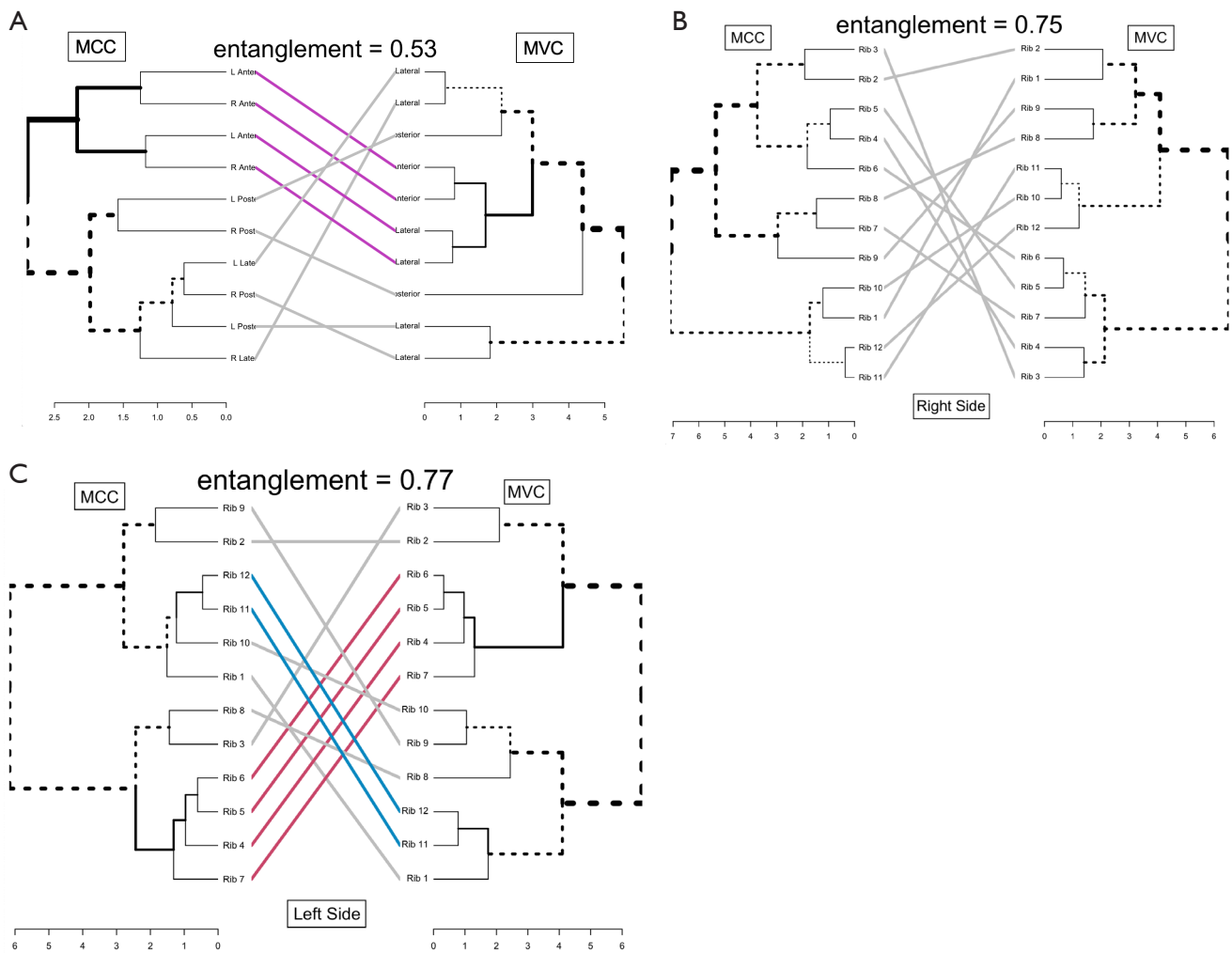
Figure S2 Baker's gamma distribution by injury mechanism. (A) Anterior to posterior positions bilaterally. (B) Rib number on right side. (C) Rib number on left side. The Baker's gamma distribution curve is plotted under the null hypothesis of no statistical similarity between the two conditions. For anterior to posterior positions between injury mechanism, the comparison between MCC and MVC (blue line) is closer on the curve to the 0.0 reference mark (black line), which indicates no correlation, and is not close enough to the 1.0 reference mark (red line) which represents the correlation of identical dendrograms with each other, in this case the MVC dendrogram correlated with itself. Therefore, there is failure to reject the null hypothesis of no statistical similarity between the two conditions with a P value of 0.19 (A). However, there is evidence for statistical similarity between rib locations on both left and right sides, with the null hypothesis rejected at P=0.03 and P<0.01 (B,C). MCC, motorcycle collision; MVC, motor vehicle collision.
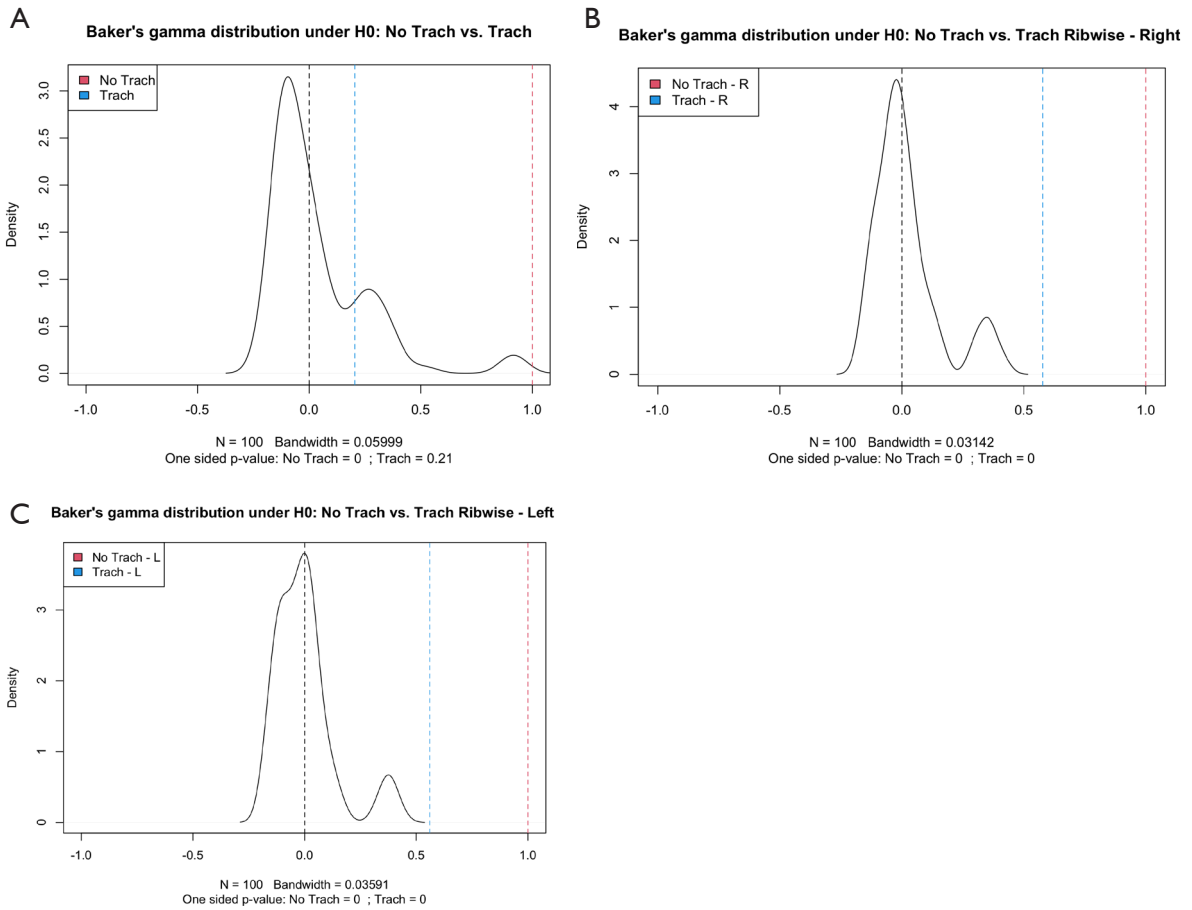
Figure S3 Entangle-grams comparing dendrograms by tracheostomy. (A) Anterior to posterior positions bilaterally. (B) Rib number on right side. (C) Rib number on left side. Tracheostomy dendrograms are represented on the left side and the no tracheostomy condition dendrogram is represented on the right side. The entangle-gram demonstrates little similarity in terminal branch clustering for anterior-posterior positions with a coefficient of 0.46 and no instances of highlighted congruent terminal branching (A). However, both left and right side of the rib-wise dendrogram comparisons yielded high agreement in terminal branching between tracheostomy and no tracheostomy conditions. On the right side, there was an entanglement co-efficient of 0.91, with similarities between terminal branch clustering of ribs 7 and 8, and ribs 11 and 12 between the two conditions (B). On the left side, there was an entanglement co-efficient of 0.94, with similarities between terminal branch clustering of ribs 7 and 8, ribs 1, 11 and 12 and ribs 9 and 10 between the two conditions (C).
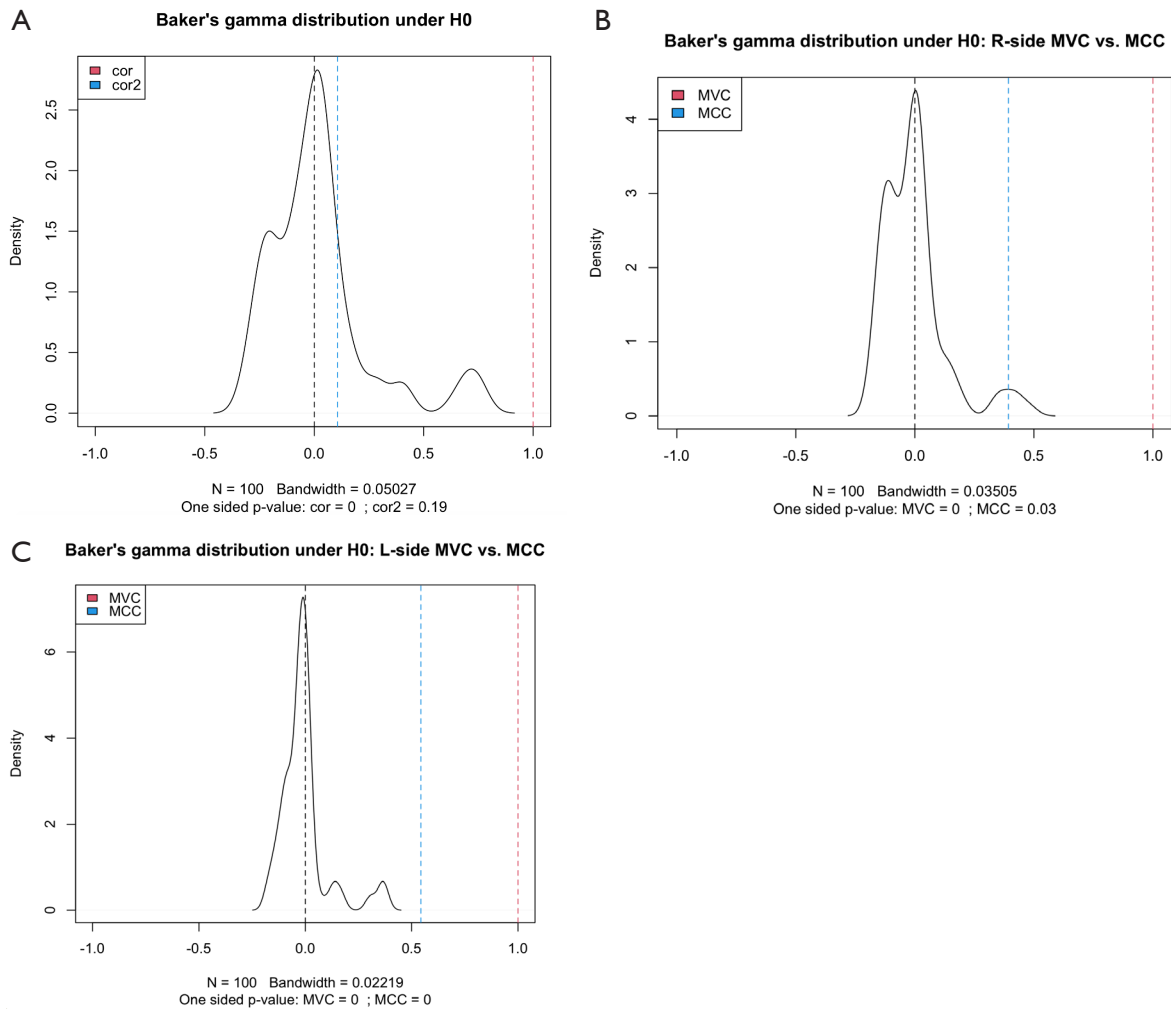
Figure S4 Baker's gamma distribution tracheostomy. (A) Anterior to posterior positions bilaterally. (B) Rib number on right side. (C) Rib number on left side. The Baker's gamma distribution curve is plotted under the null hypothesis of no statistical similarity between the two conditions. For anterior to posterior positions in tracheostomy, the comparison between tracheostomy versus no tracheostomy (blue line) is closer on the curve to the 0.0 reference mark (black line), which indicates no correlation, and is not close enough to the 1.0 reference mark (red line) which represents the correlation of identical dendrograms with each other, in this case the no tracheostomy dendrogram correlated with itself. Therefore, there is failure to reject the null hypothesis of no statistical similarity between the two conditions with a P value of 0.21. However, there is evidence for statistical similarity between rib locations on both left and right sides, with the null hypothesis rejected at P<0.01.