McKeeley Stansberry

Alpha Diversity

Figure 2.

Figure 1.





Figure 3.



Beta Diversity

Figure 5.

Figure 4.



Bray Curtis Jaccard

Figure 7.

Figure 6.





Unweighted Unifrac Weighted Unifrac

Alpha and Beta diversity are represented in the graphs above. The four graphs for alpha diversity are Pielous Evenness, Shannon index, Observed features, and Faith Phylogenetic Diversity. Pielous Evenness index examines diversity with the number of diverse species within that specific area. Pielous Evenness is measured from 0 to 1, where 1 indicates complete evenness. From the results shown in figure 1, the axilla, ear canal, and groin area across allergic and non-allergic dogs show high evenness. The interdigital area shows more of a wider spread with lower values of evenness. Shannon index examines richness and evenness. In figure 2, Shannon entropy is measured which indicates variability. As seen again that the axilla, ear canal, and groin area are generally close in measure whereas the interdigital varies more in range. Observed features examines richness of how different the individual samples are. In figure 3, we can see differences in the groin and ear canal areas between allergic and non-allergic dogs. Observed features is higher in allergic dogs in the ear canal and groin area. Faith Phylogenetic Diversity examines biodiversity based on the tree of life.

The four graphs for beta diversity are Bray Curtis, Jaccard, Unweighted Unifrac, and Weighted Unifrac. Bray Curtis examines presence/absence and abundance specifically measuring dissimilarity between the different areas. As seen in figure 4, we have more for a similarity between the axilla and groin area, but overall, the four areas fall within the same coordinates. Jaccard measures the similarity between the different areas. In figure 5, we can see a wide range of points across the site. Unweighted Unifrac measures the distance in different areas. In figure 6, difference in distance can be seen across the four body sites. Weighted Unifrac measures the presence and absence of the species in the different body sites as well as abundance, and phylogenetic diversity. In figure 7, we can see that more species are present at the interdigital area compared to the other three, which is seen to be around the same.

Metrics

Text

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Tukey AOV Pielou Evenness

Shapiro-Wilk Test- Pielou

Shapiro-Wilk Test- Shannon

Shapiro-Wilk Test- Observed Features

Table

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PERMANOVA

PERMANOVA- Bray Curtis

Table

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PERMANOVA- Jaccard

PERMANOVA- Unweighted Unifrac

PERMANOVA- Weighted Unifrac