INTISARI

Latar Belakang: Bahan basis gigi tiruan yang selama ini banyak digunakan di kedokeran gigi adalah resin akrilik. Namun basis gigi tiruan resin akrilik sering mengalami patah. Sehingga peneliti-peneliti mengembangkan bahan basis gigi tiruan berbahan *thermoplastic nylon*. Akan tetapi, belum ada rekomendasi mengenai ketebalan optimum dari sudut pandang ilmiah. Syarat mekanis basis gigi tiruan adalah memiliki kekuatan fleksural yang baik, dikarenakan mewakili gerakan-gerakan mastikasi. Salah satu yang mempengaruhi adalah ketebalan basis.

Tujuan Penelitian: Untuk mengetahui perbedaan kekuatan fleksural bahan *thermoplastic nylon* pada ketebalan 1 mm, 1.5 mm, 2 mm, dan 2.5 mm.

Metode Penelitian: Penelitian ini merupakan penelitian eksperimental laboratoris. Sampel yang digunakan berupa plat *thermoplastic nylon* sejumlah 16 plat yang dibagi menjadi 4 kelompok ketebalan (1 mm,1.5 mm, 2 mm, dan 2.5 mm). Plat *thermoplastic nylon* kemudian diuji kekuatan fleksuralnya.

Hasil penelitian: Hasil uji *One-Way Anova* kekuatan fleksural, didapatkan nilai p 0.016 ($p<0.05$), terdapat perbedaan kekuatan fleksural yang bermakna terhadap ketebalan *thermoplastic nylon* ($p<0.05$). Rerata kekuatan fleksural terendah pada ketebalan 2.5 mm. Rerata kekuatan fleksural tertinggi pada ketebalan 1 mm.

Kesimpulan: Terdapat perbedaan kekuatan fleksural bahan *thermoplastic nylon* pada ketebalan 1 mm, 1.5 mm, 2 mm, dan 2.5 mm. Semakin tebal plat *thermoplastic nylon*, maka gaya fleksural maksimalnya cenderung semakin naik, namun kekuatan fleksuralnya cenderung semakin turun.

Kata kunci: *thermoplastic nylon*, kekuatan fleksural, basis

ABSTRACT

Background: Denture base material that has been widely use in dentistry is acrylic resin. However, the resin acrylic denture base often breaks. So researchers have been develop new denture base material made from thermoplastic nylon. But, there is not clarified design (include the optimum thickness) of the thermoplastic nylon from the scientific point of view yet. The mechanical properties of the denture base is have good flexural strength, as it represents mastication movements.

Objective: To know the differences of thermoplastic nylon's flexural strength at thickness 1 mm, 1.5 mm, 2 mm, and 2.5 mm.

Material and method: This study is a laboratory experimental study. Samples used in this study are 16 plates of thermoplastic nylon which were divided into 4 groups of thickness (1 mm, 1.5 mm, 2 mm, and 2.5 mm). The thermoplastic nylon plate was tested its flexural strength.

Result: One Way Anova test of flexural strength, shows the p value is 0.016 ($p < 0.05$), it means there is a significant difference of thermoplastic nylon's flexural strength to its thickness. The highest mean of flexural strength is at 1 mm, and for the lowest flexural strength is at 2.5 mm.

Conclusion: There is a difference in flexural strength of thermoplastic nylon material at thickness 1 mm, 1.5 mm, 2 mm, and 2.5 mm. The thicker thermoplastic nylon plate, the maximum forces of flexural tend to increase, but the flexural strength tend to decrease.

Keywords: thermoplastic nylon, denture base, flexural strength