Physical properties of various wires used for orthodontic materials.

(Adapted and translated from the preceding number.)

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Elastic wires are generally used in orthodontia. As a result of the recent progress in this line, kinds of elastic wires placed on the market have increased to such a number that one is often at a loss in their selection. Still more, manufacturers are only intent on exaggerating the merits of their own products without showing their real qualities.

The author, therefore, tried to obtain information of the real physical properties, and especially their changes by heat treatment, of five elastic wires commonly used in orthodontia.

After investigating the changes of tensile strength, modulus and limit of elasticity of the wires, he observed the changes of their structures minutely by microscopic examination.

Thus, the author has come to the following conclusions:

(1) For orthodontic purposes adequate are
   i) those materials that undergo comparatively less changes by heat treatment with respect to their tensile strength, modulus and limit of elasticity;
   ii) those materials that are at once small in modulus, and large in limit of elasticity.

(2) He finds still more that he is able to calculate approximately the real value of the orthodontic forces upon the teeth in case of the use of such a simple appliance as the auxiliary spring attached to the lingual arch.