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Schilder's Technique for Shaping the Root Canal System

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INTRODUCTION

In these last years many changes have taken place in general endodontics and particularly, in the field of canal preparation: rotary instruments in nickel titanium have become progressively more utilized in the same way as crown-down shaping of the root canal system has been universally accepted.

Nevertheless, given the limits of rotary instruments, as will be discussed in detail later, and therefore the need to resort to classical manual preparation with stainless steel instruments, as well as the historical importance of the preparation technique described in the distant 1974 by Prof. Herbert Schilder, the author has therefore deemed it appropriate to keep this chapter.

On the other hand, as will be seen in the course of this chapter, many of the concepts of the so-called "crown-down" are also inherent to the Schilder technique. What is hidden in the various recapitulation phases of "preparation of the body of the canal", in which the instruments progressively advance further apically, other than a "crown-down" concept?

There are three distinct phases in the preparation of the root canal:

- 1) negotiation of the root canal and determination of the instruments' working length
- 2) maintenance of the patency of the apical foramen
- 3) enlargement of the body of the canal.

Files are used for the first two phases, reamers for the third. These instruments must be new, sterile, and re-sterilized whenever the need arises.

All instruments must be within reach of the dentist and must be kept sterile throughout the entire procedure (Fig. 15.1).

Furthermore, they must be precurved and equipped with rubber stops.



Fig. 15.1. **A.** The series of instruments are placed in a sterilizer bag and sterilized (continued).

PRECURVATURE

All the instruments must be precurved.^{39,69} The amount of precurvature depends on the radiographic appearance of the degree of curvature of the root. It must always be done, even when dealing with roots that are, to all appearances, straight.

A precurved file makes its way more easily among the obstacles and calcifications that the instrument may encounter during early probing of the canal. Precurvature prevents the instrument from making ledges or false canals.

Precurved files also allow preservation of and respect for the apical curvatures, thus preventing transportation of the foramen.

The ideal instrument for precurving endodontic instruments in a predictable and repeatable way without minimally changing the blades is represented by the Endobender. We are referring to an instrument simi-

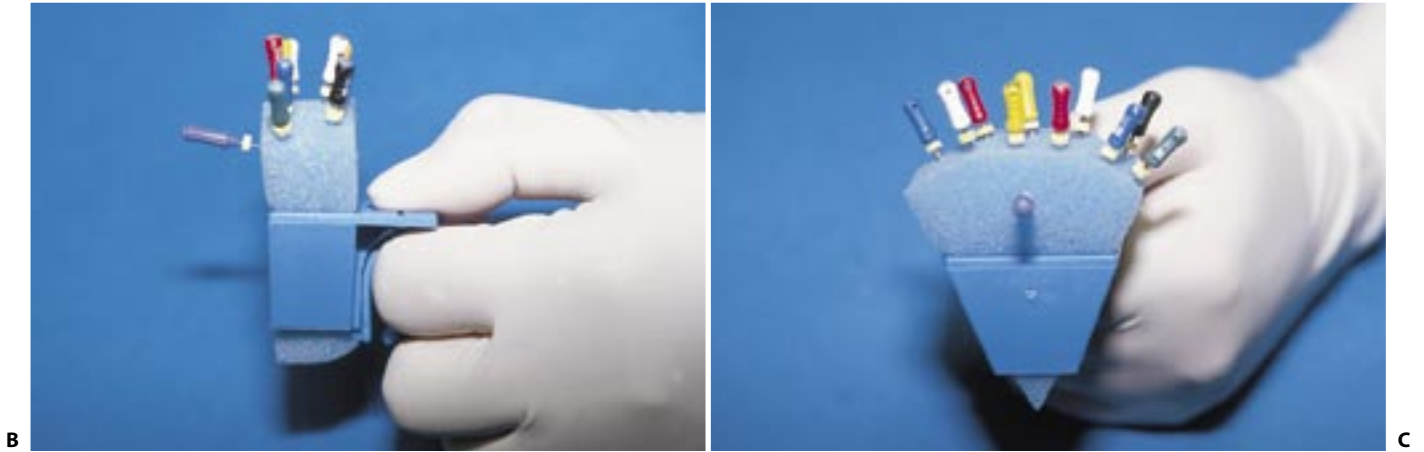


Fig. 15.1. (continued) **B, C.** The instruments are kept by the assistant in the appropriate Endoring disposable sponge.

lar to an orthodontic pliers, which bends and therefore precurves the instruments in a different way depending on the curve radius at the point where the file is placed. (Fig. 15.2) and it must coincide with the curve of the root canal: therefore it will be all the more accentuated, the shorter the curve radius of the root. In any case the file must be precurved in a gentle and gradual way and must not be bent.

The reamers must also be precurved to make them

more effective. When rotated in the canal after being slightly precurved, they describe in space a figure (the “envelop of motion” described by Herbert Schilder⁶⁹) with a cutting surface superior to the original one of the straight instrument⁴⁷ (Fig. 15.3 A).

A non-precurved reamer introduced into a curved canal will follow the canal curvature. However, because it cannot rotate on its own axis, it reproduces in space the curve that it has adopted, producing an “hour-

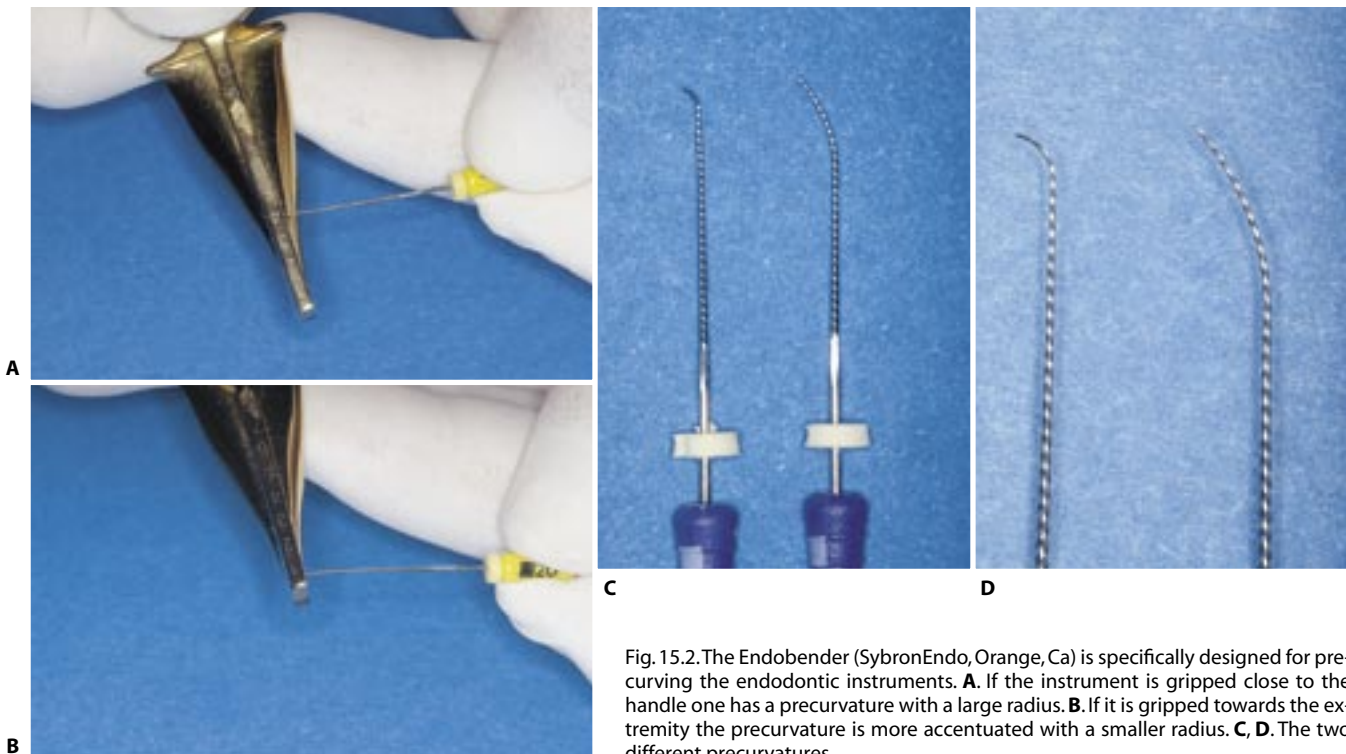


Fig. 15.2. The Endobender (SybronEndo, Orange, Ca) is specifically designed for precurving the endodontic instruments. **A.** If the instrument is gripped close to the handle one has a precurvature with a large radius. **B.** If it is gripped towards the extremity the precurvature is more accentuated with a smaller radius. **C, D.** The two different precurvatures.