**The reciprocating systems**

The famous reciprocating systems in the market now are :

-wave one

- reciproc

-TF adaptor

**THEY WORK AS A ONE FILE SYSTEM**

The concept is very similar to the balance force technique..so it’s a certain degrees clock wise ,then a certain degrees counter clock wise …and this is how advances to behaves “not a constant rotation”.

 It has certain advantages and certain disadvantages .

Self-adjusting files was patented in Israel: it’s a system that’s need a follow mesh and if you insert it into the canal it takes the shape of the canal and once activated it’s start vibrating ..so technically as if you hold a sand paper and just cleaning the canal ..it has a better ability to touch all the canal walls .

The good thing about it you can connect it to a reservoir of sodium hypochlorite and constantly irrigate while preparing.

The disadvantages:

It doesn’t prepare …it doesn’t shape the canal (so you need to prepare the canals !)

Think about it as a good irrigating system ..you need to prepare your canal system with whatever system you use and then you can irrigate with self-adjusting file (now it’s out of the markets because there’s a problem in the connection between the file and the sodium hypochlorite tube )

**The protaper system**

The protaper universal (that’s what we have in 2- clinics )…and that’s what we have to know about ☺

-the protaper files

You have to know these thing in each file:

-the working part …16 mm long

These files come prodded and come in different lengths

Pic in slide : this is a standered or the medium length which’s 35 mm !

The marks here 18-19-20-22 and the full length is 25 ..so you don’t really want to measure the length with the ruler or endo ring ☺

((your endo files..the zero point it’s not straight ..it’s tilted in a certain direction so if you use a hand file and measure it on endo ring and it gives you a 20 mm reading this 20mm is in fact is 21 or 22 …so if you measure it with a k-file and measures on an endo ring it’s not necessary to stop the rubber stop here )at that reading ) ..so “USE the same reference” ..cuz there will be some discrepancy))

Now because it’s 16 mm …the diameter at the tip is the D0 and at the end D16 ..

Because protapers have different tapers throughout the length of the instrument ..when we take about taper of each file of it we need the apical free mms

So if we have.. say F2.. have ataper 7% we refer to the apical few mms because the taper varies along the instrument ..

So the system made of shaping files and finishing files

**The shaping files** are SX,S1 and S2

-the Sx is the orifice shape you just prepare the initial coronal part.

There’s no guides how deep can you go into the canal ..the way that I feel resistant.. I brush the canal with it ..and it will give you the final shape .

-you need a reservoir of irrigant

-reduce stress on your instruments

\*\*they acts as gates gliden

The shaping files “it gives the taper from the tip toward the shank “… (the f ????)

What that means in the canal provided that you achieved the glide path ..the file will work only coronally even when we reach the full working length with the file .

So the first set of instruments prepare coronally that will take access path

Again you have to know these information :

D0…the tip size and it’s almost size 20 for SX …12 for S1..and 20 for S2.

At the apical part the taper is very low specially for the S1..THERE’S ALMOST **NO** TAPER HERE

**The finishing files:**

Look exactly the opposite starts with a big taper and then go straight toward the shank

We have f1 ,f2 f2 and then we have f4 and f5

Note that in these files the file is not as color code ..so;

F1 is 20.. Versus yellow

F2 is 25

F3 is 30 …then 40,50(f4 and f5)

You can see how large The apical taper is

Sets as 9,8 and then drops down 6 and 5 because there’s no way you can work with an instrument that have a tip of 50 and a taper of 9%!...this will be a very rigid instrument .

You need to know **the CROSS SECTION ..**it’s different from one system to another ;

For protaper (the dr. described it as مثلث ناصح …)..it’s important to realize the cross section

There’s some files have a triangular cross section ..others have a square cross section

a K file is either a square rode or triangular rode …that’s the twisted

K3 is an aggressive instrument

Hero (you don’t have to know )

The protaper next has an eccentric design while rotates in the canal it looks like a snail **!\_!**

So it has a better ability to touch the canal root .

Wave one ; have a different cross sections alongside the instrument shank .

Protocol of protaper ;

You start with SX ,S1..just to scalp the canal

-SX used without pressure and make sure there’s a lot of irrigant because it’s work as a lubricant for the canal in this stage

\*EDETA doesn’t really convene the dr ..he doesn’t think that it’s have any advantages !

You should achieve a glide path ..with hand files 10, 15 , and 20 to make sure that’s your canal is patent all the way to the tip …if you prepare to size 20 then you have a glide path ..then we start with S1 ,S2 All the way to the working length …you can keep going in and out as many times as you want because the instrument is preparing coronally ..just packing without applying any force ….if you feel a high resistant you can distribute the LOAD between S1 and S2 .

Means that if my WL is 25 and I feel resistant at 15 with the S1..i would prefer to leave 2-3 mm and take it(S1) out ,irrigate ,go with S2 to that’s ( 2-3mm) then go out ,go back to the S1 and so on until you reach the WL..

If you keep working on the same instrument it will fracture ☹

Best of luck …

Maha khaled al-hussban ..