The Shortened Dental Arch Concept

I would like to start this thread to discuss the SDA (shortened dental arch) concept. The outcome will be a consensus paper with statements addressing specific issues with the SDA concept.

1.) How do we define the SDA?
2.) Is there a change in masticatory efficiency with the SDA?
3.) Does the SDA lead to TMD associated issues?
4.) What are the patient perceptions of the SDA?
5.) How does the classic implant hybrid prosthesis factor into the SDA concept?
6.) What are the neurobiological and neuromuscular principles that govern the physiology of the SDA?
7.) How do we manage the SDA for successful long term outcome?
8.) What are the indications and contra-indications for the SDA?

Anyone in?

Great question. I have been asking myself this question mainly for implant full arch rehabs. I have a few cases on the go where either the patient flat out refuses sinus lift surgery to allow posterior implants or don’t have enough posterior mandibular bone height for posterior implants, but want fixed restorations.

I will not place cantilevered teeth in the maxilla, nor will I place a full length (meaning two premolars and at least one molar) bilateral cantilever on a mandibular fixed prosthesis when the crown height is very tall (i.e., many hybrids). I have agreed with some of these patients to have a shortened dental arch. For me this means either one premolar and one molar or two premolars.

In my opinion, this will still give very good function, but not ideal. I have many patients with no natural molars in their mouth, but still have all of their teeth from second premolar forward. Sometimes I will ask some of them if they have any problems functioning and, honestly, not many of them complain. My father is one of these.

What exactly is the masticatory efficiency of a SDA? Not sure but, I saw somewhere (either dental school or at a lecture – Charles English maybe) that a removable partial denture is not recommended or indicated for someone who has all teeth except for molars in an arch as it will not increase chewing efficiency. Therefore the function of a SDA must be good. Not excellent, but good? Howard, you are a prosthodontist, what is your take on this?

I see no reason why not to provide a shortened dental arch as a compromised (function) but acceptable treatment plan. For me, it is the better of the two compromises: biomechanics vs. function. However there must be something I don't know. I have never read anything on the SDA. I briefly saw it discussed on osseonews and some felt strongly that it causes TMD. How does it cause TMD? I don't see it in dentate patients. Is there a reason it would be worse in implant patients? Would it be worse with both arches implant-rehabilitated?

So many questions. Anyone have answers?
I have no papers to point to. Others will and I look forward to reading them (actually looking forward to reading the summaries rather than the whole paper).

I just have 28 years of being a dentist to make an observation or two. I have not seen anyone develop TMJ “problems,” muscular pain, or complain of chewing insufficiency with first molar only occlusion in all those years. Not once. I do not recommend implants to replace second molars unless the patient specifically asks for it. First molars are a whole other story of course.

1.) How do we define the SDA? Is there a consensus? No molars? No seconds?
2.) Is there a change in masticatory efficiency with the SDA? No second molars no problem... no first molars? Hear different feedback from patients but will side with no molars meaning decreased function.
3.) Does the SDA lead to TMD associated issues? No.
4.) What are the patient perceptions of the SDA? Depends on the patients. No one seems to care about no second molars... No first molars is an issue... even here in Spokane.
5.) How does the classic implant hybrid prosthesis factor into the SDA concept? Care to define what you consider the classic design?
6.) What are the neurobiological and neuromuscular principles that govern the physiology of the SDA? Don covered some nice ones... nice balance between function, nm and aesthetics... as long as we have 6s IMO [in my opinion].
7.) How do we manage the SDA for successful long term outcome? Not sure?
8.) What are the indications and contra-indications for the SDA? Patient driven?

Miguel,
I would like to keep a running lit review on the topic and make our consensus from the literature. So we can define point one as no molars. Second premolar occlusion. But let’s pull it from the literature.

Howard,
I didn’t see this thread posted when it originated. I read some of the articles in the past and found it ironic that I start my full mouth rehabs 10 over 10. According to the literature this cannot and will not cause any problems function-wise, masticatory-wise, or joint-wise. It also shows that loads decrease when the patient is only in second premolar occlusion.

I was taught this technique because you can then use the unprepped molars for control bites. You never lose your distal contact and always have an ability to tripod the bite. For me it works well.

This thread is great. When Howard first posted the topic in October, it made me reflect on how often I presented the option to my edentulous patients. When I did a quick search for some articles, I realized that I should offer this treatment...
more often, with less reservations. In the past, I would really push for patients to go
the route of the sinus lift and they were reluctant to the point that sometimes it
turned them off to any treatment. If I did compromise, I found that the patients
were happy with the final result both aesthetically and functionally.

Now, with more confidence in the treatment, I am presenting the SDA as one
of the very acceptable choices, and case acceptance has gone up quite a bit. I think
the fact that it brings the cost of the treatment down a lot (at least two implants
less, two sinus lifts less, lower lab fees) has aided case acceptance quite a bit. I have
two more coming up in the next month. They are quite fun.

Howard,

Read the Kanno paper along with all the Kayser lit. they have the real hots for
it on my program... it is compulsory reading under “Classic Lit,” seems to be little
known outside Europe judging by the DT response... is it widely used in the USA?
I notice the Japanese are skeptical although the reasoning isn't expanded upon.
What the Kanno paper doesn't mention is the damaging effects of Kennedy I
and II RPDs ... root caries, accelerated perio breakdown, etc.

Based on this, I do mainly SDA in the office now for missing lower molars that
are not prepared to accept implants. Interestingly, it is not a big deal for my patients
and often allows me to do more comp care on the teeth they have within their
budget.

So let's give anyone interested a few days to catch up on these
papers and then attempt to answer the above questions. I am certain
the questions will bring discussion and opposing ideas but that is what
I like to see. No better way to open our eyes. Of course I have my
opinions about the above questions and I do use the SDA concept in
my practice often. But let's at least attempt to develop an understand-
ing of the above so when we make decisions to use this concept, we know why and
the goods, bads and uglies.

I was watching a National Geographic special recently. It was show-
ing the life and daily activity of the Anlo-Ewe tribe. I noticed one par-
ticularly happy dude with no clothes on. Only a small piece of cloth
covering his privates. He was carrying some things on his back across
an old makeshift bridge. Smiling, working, living. Then I noticed he
was smiling. He had two teeth. Not sure if they were CR interferences
or not. But then I was blown away.

Where was his NTI? Where was his bag of RX meds? How was his dentist deal-
ing with his inability to cope with life because his teeth were not OM1? The para-
function must be amazing. I just kept thinking NTI or full coverage. Root
reshaping and grafts?

Find it online at www.dentaltown.com

Shortened Dental Arch