

ORTHODONTICS and 'THE PINOCCHIO FACTOR'

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Pinocchio tells the tale of a poor carpenter, Geppetto, who has no wife and no child. He carves himself a puppet boy out of wood and calls him Pinocchio. Pinocchio (is granted life, with conditions, and), like other children, has a lot of lessons to learn in life. When he disobeys his father and runs away, he has a series of adventures which teach him these lessons, the most famous being that he shouldn't tell lies. When Pinocchio lies, his nose grows longer...¹

Applying the Pinocchio factor to orthodontics, how long would its nose be today?

Orthodontics became the first dental specialty in 1900 thanks to Dr EH Angle². The 'laws of orthodontics' were developed from trial and error assessments, opinions and anecdotal claims. Most of the laws have never being scrutinised or validated scientifically.

The nose was one inch long to start with.

1. Orthodontics is evidence based (EB)

.....add one inch



Approximately 33,500 papers have been published in the orthodontic literature³ and of these, about 20 satisfy the evidence based requirements⁴, that is, 0.05%.

The new EB philosophy has yet to address the value of the many papers which don't fulfil the strict EB requirements but do have merit, especially where many case reports etc come to similar conclusions.

2. Orthodontics is not about aesthetics

.....add one inch



The truth is, orthodontics has always been about aesthetics by enhancing the beauty of the dentition and the face²

People who have crooked teeth are embarrassed by them. You can't hide a facial disfigurement easily



Fig 1. Before treatment. After treatment.

unless you use a masking device like a fan – as was done in the 1600's. Ugly teeth are a social handicap. Beautiful people have the benefits of the "beauty bias"⁵ – they get more favours and go places. They have many advantages over the plain people throughout life. Figure 1 demonstrates what orthodontic treatment can achieve in enhancing the beauty of the face and confidence of the smile.

3. Orthodontics is about function

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The truth is, most orthodontic treatments don't noticeably improve dentition function when assessing mastication performance⁶ or alter speech⁷ or correction/prevention of temporomandibular joint dysfunction (TMD)^{8,9}.

As Shaw et al commented, 'Even the most severe deformities of the jaws such as cleft lip and palate, skeletal open bite and mandibular prognathism appear to be associated with surprisingly little functional disability'.

4. Orthodontics is about stabilising the dentition

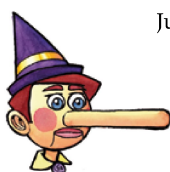
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Any dentist who has been in practice for more than five years will verify that relapse occurs more often than most orthodontist's realise¹⁰.

5. Orthodontic treatment never dishes the face in

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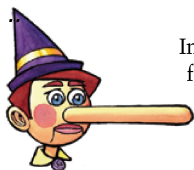


Just ask anyone who is over 20 years old and from a sophisticated society how often they have seen or heard about this problem. The majority of orthodontic patients, 55%, have a retrognathic mandible^{11, 12} and to achieve the obligatory ideal Class I occlusion outcome from 'camouflage orthodontic treatment', the maxilla is invariably retruded, that is, dished in, to fit onto the deficient mandible¹³.

Ah! But wait, these patients do have great lip posture.

6. Orthodontic/Orthopaedic treatments can make deficient mandibles grow larger

.....add one inch



In 2007, 'The Cochrane Collaboration'¹⁴ finally buried that BS claim.

7. Surgical orthodontic treatments with rigid fixation correct skeletal discrepancies permanently

.....add one inch



A recent long term, 12.5 years, review study by Joss and Thuer¹⁵, presented in 2005 and published in 2008, found such surgery for Class III corrections reverted, on average, by approximately 2% per annum and Class II mandibular advancement corrections reverted by approximately 5% per annum.

This is not a good outcome for the retrognathics.

8. Orthodontic education is up to date and effective

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Most university orthodontist training schools suffer from academic stress; they have serious cash and staff shortages due to their poor financial circumstances. Their research projects are handicapped for the same reasons.

Students are encouraged to challenge their lecturers on orthodontic theory and techniques, if they don't mind repeating the year.

Some orthodontic conferences have taken on a policy of 'No question time' after presentations. It's like being back in undergrad classes. So, how dumb is the audience? Don't they have the ability to contribute valuable and objective information indirectly? Often the best information obtained from a lecture is during question time and if that facility is removed, why bother attending?

9. Orthodontic research is unbiased

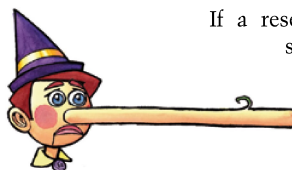
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All research has bias problems¹⁶. How can a cash-strapped institution run expensive prospective randomised controlled trials with sufficient numbers of patients over the two years and more that is necessary to achieve a valid evidence based result? And how does one get 'Ethics Approval' to conduct these trials on children?

10. The Orthodontic press is up to date and unbiased

.....add 1 inch



If a research paper agrees with the status quo, chances are, it will 'get published within 30 months of presentation at a conference'¹⁶, if not, take a number and wait (up to 4 years, if at all).

A computer that is more than three years old is a 'dinosaur' but orthodontic research that gets published after three years is 'cutting edge stuff'.

Any would-be contributor to a journal should expect their paper to be peer reviewed, scrutinised, sanitised and often emasculated before being published. Any statistical analysis is usually designed so that only 'the initiated few' can understand it, for example $\Sigma = \sqrt{\pi/\xi}$ armstrong/pascal/hertz^o. And always remember, the higher the P value, the more insignificant the result is.

References sometimes can't include research presented at a conference or seminar etc. unless it has been published in an acceptable journal, eg, Professor R Little's¹⁷ summary of findings from the Seattle Studies presented at the AAO Annual Conference in Orlando USA, 2004. For most journals, references that are not published didn't happen. And if it's off the web, should we really be very afraid?

Idle chit-chat conversations with the 'Brains trusts' at conferences have mentioned that there are over 200 forms of scientific bias including editor biases. The readers can't be considered to be intelligent enough to separate fact from fiction -hence, if the reviewer(s) and/or editors don't like a paper, in the bin it goes. As an example which would probably apply to most journals, in 2007, the ADJ reviewed 155 papers from 25 countries and of these 26% were published¹⁸. Most of the rest (74%) we will never know about. How sad is this for the rejected researchers and science? Couldn't these papers be published as abstracts with web links to access the full text? Reviewers could add their concerns -with references, and couldn't we, the readers, be humoured enough to make judgements on the validity of these papers for ourselves?

11. Patients and parents opinions from their experiences in orthodontics are sought after and respected

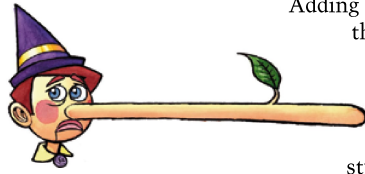
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Does it matter what they think?

We are the experts so what we say goes! A search of the literature will show how few studies there are in this regard.

12. Governments see to it that the public are looked after



..... Hold 1 inch

Adding a touch of sarcasm, there are no struggling faculties or students in Australian Universities, apart from the post grad research students who are provided with just enough money to keep them below the poverty line. Here in Australia, Kevin has promised to fix education; no comments are needed at this time.

13. But wait, there's more, there's the biggest lie of all and that is 'The essential need for orthodontic treatment to establish an ideal Class I occlusion'. Where is the evidence? ¹⁹

---- then again, I think Ortho Pinocchio has had enough. The orthodontic Pinocchio face has an advance escort of conservative archaic doctrine and non-questioning blinkered troopers wherever it goes so that the nose doesn't get knocked around. Ah! But it does have really good lip service, err, posture. ◆

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QUESTIONS

- How many forms of Research Bias are there?
 - 50
 - 100
 - 150
 - >200.
- The Orthodontic literature contains approximately what percentage of valid 'Evidence Based' research papers?
 - 50%
 - 20%
 - 5%
 - 0.05%
- The surgical correction of mandibular retrognathia using rigid fixation may revert over the following 12 years by approximately how much?
 - 60%
 - 40%
 - 20%
 - 10%
- The opinions of patients and parents on their orthodontic experiences are keenly sought after and reported in the literature.
 - True.
 - False.
- Approximately what percentage of orthodontic patients has a retrognathic mandible?
 - 75%
 - 55%
 - 35%
 - 25%
- Orthodontic treatments often provide functional benefits for the patient's dentition.
 - True.
 - False.
- Papers submitted for publication in leading dental journals are usually published within:
 - 6 months
 - 12 months
 - 24 months
 - 30 months
- Orthopaedic/orthodontic treatments do not make the mandible grow larger.
 - True
 - False
- The statistical analysis presented in orthodontic journals is usually straight forward and easy for most readers to understand.
 - True
 - False
- Acceptable 'Evidence Based' research in orthodontics usually requires which of the following
 - A lot of cash
 - More than 2 years
 - Ethics approval
 - Dedicated researchers