Newsletter

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Text-Neck is bad science and fear mongering

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There are a few issues with the concerns of people reading their phones with their neck flexed.

- it ignores a great deal of biomechanical research showing a very poor correlation between posture and pain
- it ignores the research showing that neck pain is so much more than physical loading on the spine
- it ignores our bodies ability to adapt. When we load any body part it adapts. This is how runners can run marathons. Loading (or pounds on the neck) is good
- if you are worried about text neck than you are ignoring the activities that have had humans bending their necks for centuries. Reading books, playing chess, looking down at the sidewalk, knitting etc all require the neck to flex. Where is the outrage in the media against knitting? Against chess? We have always bent our necks it is what we are built to do
- the conclusions ignore the sporting activities that have huge amounts of loading but are good for the spine. Cycling, heading in soccer, headstands and golfing all create large loads on the neck. Provided people slowly and progressively ease into these activities we can adapt.

The problem with text-neck is the same problem as any other prolonged position. We are meant to move. If you hold your head in ANY position for prolonged periods it is likely that you will feel pain. Ask a soldier on parade. That ideal upright position is a real pain in the neck.

None of these criticisms imply that the cervical spine is not stronger when in neutral. If I were to do a headstand I would not flex my neck. However, heavily loaded positions are different than simply bending your neck.

Its quite difficult to fully critique this paper as the Methods section is incomplete. A methods section should allow you to reproduce the paper. This paper does not provide that. The results are not put into context. What does 60lbs of force mean? Is this 60 lbs of compression through the vertebral bodies? Is the force shear? The results are not presented in a manner consistent with biomechanical studies.

Here is the methods section; "A model of the cervical spine was created with realistic values in Cosmosworks, a finite element assessment package. Calculations were made and then forces were extracted in newtons and then converted into pounds. We made the calculations

using neck + head, which gave an average weight of 60 newtons (6kg or 13.2 pounds). The center of mass was located 16cm above C7 or 15cm from the top of the skull."

The results of the study (if they are valid which can not be assessed) need to be put into context. What are the loads through the spine during other daily tasks? What is the failure tolerance of the cervical spine? Other research has suggested the cervical spine has more than 45% the compressive strength and 20% the bending strength of the lumbar spine. This compressive value would exceed 450 lbs. If the authors are measuring compression (which again we don't know) then you can see that 60lbs is not that big a deal. Why did the authors not discuss this paper?

A much better paper that explores the complex inter-relationships between pain, posture, psychosocial factor, physical anthropometrics can be seenhere. What you notice is that posture is poorly correlated with pain. Not even that well correlated with pain never mind actually causing pain.

So why do I care and what's the harm in these reports

First, they are just wrong or at least not very complete. I think there is value in trying to be a little less wrong.

Second, what does it say to patients when we tell them how terrible certain postures and that they need to adopt an unvalidated, assumed "ideal" posture? To me it supports the idea that the body is weak and that it only has this small range of optimal function (e.g that ideal head position). I view the body as robust and strong. Capable of adapting to the stresses we place on it.

Last, when patients are in pain they are often afraid to move. Again, they view their body as weak and fragile. Which it is most often not. It is certainly sensitive. Providing unnecessary rules about how to move, about positions to avoid and advice that creates this sense of fragility can increase pain, hypervigilance, lowered self efficacy and increased catastrophizing - all associated with pain and disability. Patients need to learn their strength.

Is there anything good in these reports?

There sure is. If we reconceptualize our views on posture and recognize that any posture that is used repeatedly/prolonged and that we aren't accommodated to might increase the sensitivity of our system then perhaps there is a good message in there. But this is not the same as saying we need to always stay near an ideal. Instead look for variety, build tolerance, build confidence and develop capacity.