

Which tests of the neck are of any use?

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The diagnostic accuracy of:

- Orthopaedic tests of the neck for cervical radiculopathy.
- Manual tests to establish the risk for cerebrovascular disorders.

Sidney Rubinstein: Adverse events following
chiropractic care for subjects with neck pain.

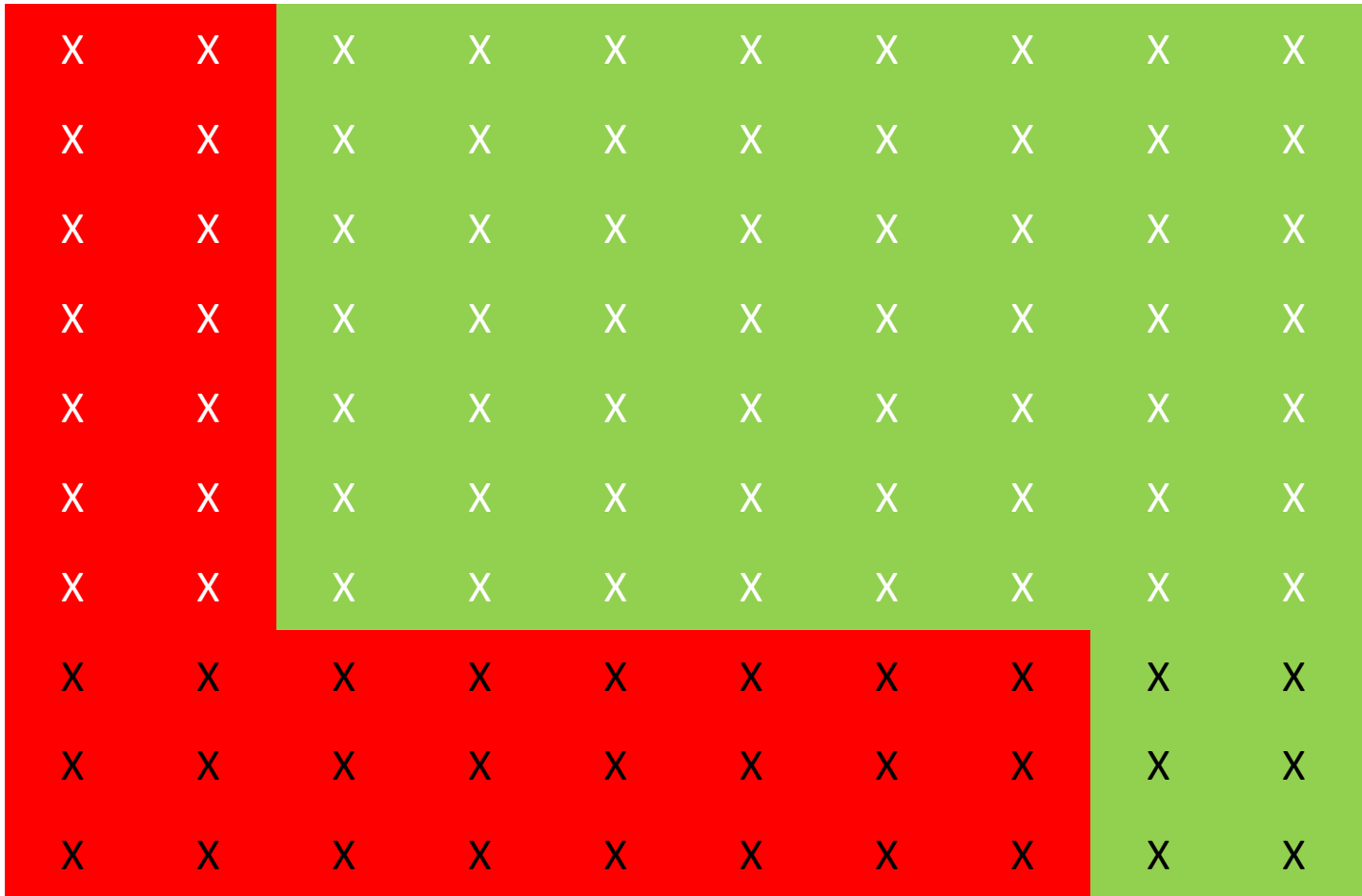
Ph.D.-thesis, Vrije University, Amsterdam, 2008

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Sensitivity/specificity?

- Sensitivity: the ability to detect diseased individuals (sensitive)
- Specificity: the ability to detect healthy individuals (specific)



Orthopaedic tests

- Symptoms consistent with radiculopathy
- The neurological exam is in-conclusive
- Cost-effective and non-invasive
- Accurate?

Orthopaedic tests

- Spurling's test
- Neck distraction / Axial traction
- Axial compression
- Valsalva
- Shoulder abduction
- Shoulder depression
- Upper limb tension test (ULTT)

Review

- Extensive search
- Six studies
- Large populations, but few diseases (18-19)
- Only one study from primary care (low quality)
- Different reference standards
- Tests not standardized (specifically spurling's)

Results

	Diseased +/-	Sensitivity	Specificity
Spurling's test with extension	20 / 5	90%	100%
	9 / 16	53%	94%
	29 / 21	73%	92%
	20 / 172	30%	93%
	19 / 63	50%	74%
Spurling's test without extension	22 / 56	50%	93%
	19 / 63	50%	86%

	Diseased + / -	Sensitivity	Specificity
Shoulder abduction test	18 / 4	78%	75%
	13 / 13	46%	85%
	19 / 63	17%	92%
Shoulder depression test	-	-	-
Traction /neck distraction test	9 / 35	44%	97%
	19 / 63	44%	90%
Axial compression	-	-	-
Valsalva manoeuvre	19 / 63	22%	94%
ULTT	18 /27	83%	11%
	19 /63	97%	22%
	19 / 63	72%	33%

Summary

When consistent with the history and other physical findings:

- Positive Spurling's test, traction/neck distraction, Valsalva: suggestive of cervical radiculopathy (high specificity)
- Negative ULTT rule out cervical radiculopathy (high sensitivity)

Manual test for CVA-risk

- Pre-manipulation prolonged positional manoeuvres as an indirect measure of vertebral blood flow.
- Involves extension and flexion

Two study examples:

- Experimental study of 8 pigs:

No change in volume flow in the vertebral arteries during pre-manipulative testing.

Licht et al 1999.

- 15 patients with positive test: no difference in peak flow or mean flow (color duplex sonography).

7 patients refused treatment, 8 patients treated successfully.



Licht et al 2000.

Review conclusions

- Thorough history taking (VAD may present as pain only)
- With symptoms of brainstem ischaemia, provocative testing is very unlikely to provide any useful additional diagnostic information.
- With unapparent vertebral artery pathology, provocative testing is very unlikely to provide any useful information.
- If there is a strong likelihood of VAD, provocative pre-manipulation tests should not be performed.

If you want to know more.....

Thiel h, Rix G. **Is it time to stop functional pre-manipulation testing of the cervical spine?**
Man Ther 2005;10(2):154-8.



Conclusion

Orthopaedic tests:

- Use the tests, but interpret them with caution!

Extension/rotation test for VAD-risk:

- Reconsider
- False sense of security

Remember:

You treat individuals – science investigate populations. Therefore, science can give you guidelines, not answers!

Never let a test stand alone,
regardless of validity,
reproducibility and accuracy.

