

A neuroanatomical comparison: Blumenfeld's *Neuroanatomy through Clinical Cases* vs. Snell's *Clinical Neuroanatomy*

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Joule is passionate about education, from both teaching and learning perspectives. He currently enjoys studying neurology and being involved in educational and peer tutoring programmes run by the Adelaide Medical Students' Society. In the longer term, he plans to incorporate the field of Medical Education in his future career.

Blumenfeld H. *Neuroanatomy through Clinical Cases*, Second Edition. Sunderland: Sinauer Associates; 2010.

RRP: AU\$119.95

Snell, RS. *Clinical Neuroanatomy*, Seventh Edition. Baltimore: Lippincott Williams & Wilkins; 2009.

RRP: AU\$107.80

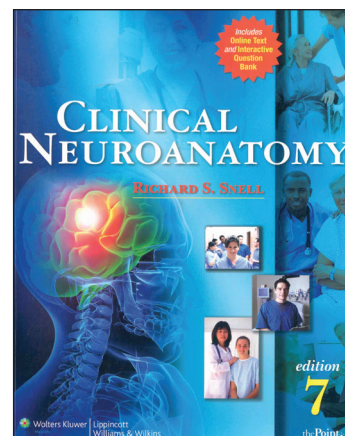
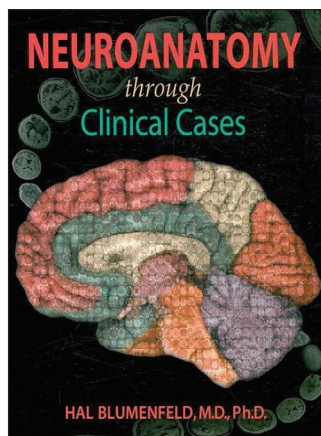
As stated by Sparks and colleagues [1] in their comparison of *Clinically Oriented Anatomy* and *Gray's Anatomy for Students*, studying anatomy can be a challenging endeavour. This is true even more so for the study of neuroanatomy, which many students find particularly overwhelming. In the neuroanatomy textbook arena stand two 'gold standard' textbooks: *Neuroanatomy through Clinical Cases*, by Hal Blumenfeld, and *Clinical Neuroanatomy*, by Richard Snell. Inspired by the aforementioned comparative anatomy textbook review in the previous issue of the journal, I ponder the question: Which neuroanatomy textbook is superior, the more established Snell or the newer Blumenfeld?

I begin my comparison with a consideration of their similarities. Both textbooks have a similar layout: after a few introductory chapters, they apply a quasi-regional approach to neuroanatomy, with chapters on the topics of the spinal cord, cerebellum, basal ganglia, and other major areas. This layout suits the beginner, with the introductory chapters at the beginning of each textbook providing a strong foundation from which to learn the more detailed material presented in the later chapters. Another great strength shared by both textbooks is the extensive use of radiological images which provide clarity of understanding that would not be achieved by illustrative diagrams alone. [1]

From here, however, the textbooks start to diverge. The first divergence is in terms of textual detail. Blumenfeld includes more rigorous explanations than Snell. Being less thorough makes Snell easier to read, but Blumenfeld's rigor tends to provide a more complete understanding of each topic. An illustrative example of this is in regards to learning the facial nerve (cranial nerve VII). Snell provides an effective yet simple description of the facial nerve in approximately three pages. In comparison, Blumenfeld's six-page-long description of the facial nerve contains more detail and more diagrams. It also includes a relatively detailed summary of facial nerve lesions, the corneal reflex and the jaw jerk reflex. While the number of pages devoted to a topic may be a rather crude measure of textual detail, one cannot ignore the fact that Blumenfeld, at an impressive length of 976 pages, is almost twice that of Snell's 560 pages. In the end, whether it is desirable to prioritise depth, or ease of reading, is up to the individual student, but I perceive the greater depth of Blumenfeld as generally preferable.

Another difference lies in the method by which the textbooks deliver the clinical relevance of the neuroanatomy described. Blumenfeld uses a combination of *Key Clinical Concepts* and *Clinical Cases*, whereas Snell uses a combination of *Clinical Notes*, *Clinical Problem Solving* and *Review Questions*.

In Blumenfeld, each Key Clinical Concept is a concise summary of a particular symptom, condition, syndrome, or disease. For example, *5.3 Key Clinical Concept: Elevated Intracranial Pressure* details the pathophysiology behind raised intracranial pressure, the mechanisms



leading to the relevant clinical symptoms and signs (headache, altered mental status, nausea/vomiting, papilloedema, visual deficits and Cushing's triad), and the appropriate interventions. After explaining the *Key Clinical Concepts*, the *Clinical Cases* are introduced. These begin with a short case presentation of a patient's presenting complaint, history and physical examination, followed by several questions. Blumenfeld then works through the case, discussing the key symptoms and signs, and the resultant clinical course (usually including investigations and management). For example, *Case 6.1 Sudden Onset of Right Hand Weakness* describes a 64-year-old man presenting with right hand weakness following cardiac arrest. The key symptom and sign is then discussed, as well as the subsequent clinical course and neuroimaging. There are a total of 121 *Clinical Cases* in Blumenfeld.

In Snell, the *Clinical Notes* are brief explanations of clinically relevant concepts. For example, the *Clinical Notes in Chapter 2: The Neurobiology of the Neuron and the Neuroglia* provide short paragraphs on *General Considerations*, *Reaction of a Neuron to Injury*, *Axonal Transport* and the *Spread of Disease*, *Tumours of Neurons*, and so on. These *Clinical Notes* are then supplemented by a *Clinical Problem Solving* section, which mostly contains scenario-type questions, and by a *Review Questions* section, which mostly contains multiple-choice questions. These sections are followed by their respective *Answers and Explanations*.

In many ways, the *Key Clinical Concepts* present in Blumenfeld and the *Clinical Notes* in Snell are very similar, but again, Blumenfeld tends towards greater depth. Furthermore, neuroanatomy is traditionally described as a dry and boring subject, and each *Clinical Case* provides an interesting and clinically relevant context to learning that generally aids retention and understanding of core concepts. On the other hand, Snell's *Clinical Problem Solving* and *Review Questions* are an excellent resource for testing one's knowledge and for exam preparation, and the utility of these questions as such a resource should not be underestimated.

Discussion of Blumenfeld would not be complete without mention of the neuroexam.com website. [2] The website is specifically designed by Blumenfeld to complement his textbook. The videos on the website are free to view, and anyone with internet can access them. However, the effectiveness of this resource can naturally be maximised by concurrent use of Blumenfeld's textbook, whereas it provides Snell's textbook a less synchronous accompaniment.

Overall, I feel that Blumenfeld is more detailed and therefore easier to understand as the student can more fully understand each topic. I also believe that the information presented in Blumenfeld is easier to retain due to the very clear 'bedside' relevance of the neuroanatomy taught as compared to Snell. However, Snell provides a succinctness which is excellent for a general overview of neuroanatomy and may therefore be more suitable for junior students. So which textbook is

References

[1] Sparks D, Davies GS, Nath A. 'Moore' than just a doorstep: Clinically Oriented Anatomy vs. Gray's Anatomy for Students. Australian Medical Student Journal 2010;1(1):58-9.

the winner of the battle in the neuroanatomy textbook arena? The ultimate decision lies with you, but for the reasons I have outlined, I recommend Blumenfeld.

Conflict of interest

None declared.

[2] Blumenfeld H. Neuroexam.com [Online]. 2010 [cited 2011 Aug 20]; Available from: <http://www.neuroexam.com/neuroexam/>