



Revista Española de Cirugía Ortopédica y Traumatología

www.elsevier.es/rot



EDUCATION

Training on spinal surgery in Spain: Current state and the future[☆]

Formación en cirugía de columna en España. Estado actual y futuro

R. González Díaz

Unidad de columna, Área de Cirugía Ortopédica Traumatología y Rehabilitación, Hospital Universitario Fundación Alcorcón, Universidad Rey Juan Carlos, Madrid, Spain

I had the pleasure of reading the article written by our beloved and fondly remembered Professor Munuera that was published in issue 55 of the *Revista Española* [Spanish Journal].¹ This article highlights what the fundamentals of training should be for various specialties in the Health Sciences.

The *Consejo Nacional de Especialidades en Ciencias de la Salud* [National Council on Specialties in Health Sciences] (formerly the *Consejo Nacional de Especialidades Médicas*) is firmly committed to making training for specialization compulsory. This is taken from the work done by representatives from the Human Resources interterritorial commission of the *Sistema Nacional de Salud* [National Healthcare System] and representatives from various national commissions on the specialties.

All of this has been spelled out in Law 44/2003 of 21 November for regulation of the Healthcare Professions. The compulsory training—a period of 2 years—would cover what was formerly the rotations through different specialties that were part of the Residency program.

Compulsory training means 1) a preliminary training period shared by various specialties having certain characteristics in common—characteristics enabling Residents in these different medical specialties to be grouped for cross training—as well as 2) flexible options for a change of specialty.

This presents obvious advantages and potential problems, depending on whether the Centre is able to take on the training of a large or a small group of specialists, since specialties are currently chosen in advance.

In this regard, Law 44/2003 changes the way Residents are admitted into the training program, in that academic and professional merits will be evaluated, and candidates will have to pass tests designed to evaluate theoretical and practical knowledge as well as fundamental clinical and communication skills in current healthcare practice. With these procedures, and depending on the scores, the appropriate program and teaching unit will be chosen. In theory, at the end of the compulsory training (2 years), the choice will be made based on the scores obtained on the different evaluations (40%, initial score; 30%, the various periodic evaluations; and 30%, final evaluation).

As is apparent, specific training in Orthopaedic Surgery and Traumatology (OST) may remain brief, with a 3-year period of exclusive training—the same as other 5-year specialties. This is because of the range of fields within our specialty and the ever more prevalent “super-specialization” in different areas of Orthopaedics and Traumatology during basic training in the specialty. The definitive program for training in Orthopaedic Surgery and Traumatology was approved by Ministerial Order SCO/226/2007 [BOE (Official State Bulletin) of 7 February 2007] and is recognized as the official program for this specialty. This program defines training objectives in the areas of knowledge, skills, and attitudes. The program also specifies the different rotations the Resident must complete (a total of about 6 months in other specialties). A rotation on a specific teaching unit within the specialty, either here or abroad, is recommended during the final year. Here is where,

[☆] Please cite this article as: González Díaz R. Formación en cirugía de columna en España. Estado actual y futuro. *Rev esp cir ortop traumatol.* 2011;55(6):485–488.

E-mail addresses: rgonzalez@fhalcorcon.es, pmenocal@telefonica.net

in theory, training in one of the so-called "subspecialties" would be introduced.

Law 44/2003, regulation of the Healthcare Professions, states the compulsory training for the 2-year period and the specific training for the following 3 years. The option for specific training in one of the subspecialties is not clearly stated in this period; it would be proposed following the final test after the 5 years of training.

The need for training in subspecialties

Just as the obvious advantages of compulsoriness have been discussed—various specialties being trained together in the same competencies promotes learning, teamwork, and communication and also makes it possible to change specialties without having to take examinations again—the potential drawbacks must also be pointed out. In my opinion, a training period of only 3 years is too short for a specialty that, in and of itself, requires at least 4 years of training due to the broad range of areas and knowledge it encompasses. Besides, adding more selection tests, when one has already been taken at the start, and a possible final test could mask the true purpose of the compulsory training and the choice of subsequent specialization, which could change for reasons other than the grade or merits the student obtains.

On top of all this is the ever more prevalent "election" of a subspecialty by OST Residents during their training period, either at the same hospital or through a rotation at another teaching unit here or abroad.

The complexity and diversity of innovations in the various fields of Orthopaedic Surgery demands ongoing specific training—even exclusive training, in some cases, especially in certain areas, such as hand surgery, paediatric orthopaedics, and spine surgery.

Coleman,² in 1978, was the first to introduce the idea of the need for specific training in relation to developing special qualifications. Coleman claimed that the average specialist cannot meet the challenges posed by innovations and techniques in certain areas—that, because of their complexity as well as the dedication and, in some cases, depth they require (spine surgery, for example), they call for extraordinary and often exclusive commitment.

In the United States, training programs in subspecialties are carried out through *fellowships*. It is estimated that more than 60% of Residents in the United States undertake some subspecialty program either in the course of their Residency or upon completing it.³ Accreditation programs in the United States began during the 1980s, and the Accreditation Council for Graduate Medical Education, the American Board of Medical Specialties, and Residency review committees as well as health services (Medicare) all participate in their accreditation.⁴

Subspecialization appears to be inevitable as an element of social progress in our country—particularly in Medicine—not only because society needs it but also because surgeons demand and promote it for the purpose of improving patient care, education, training, and research. It is important to add that, besides these benefits of subspecialization, surgeons who undergo training in a subspecialty are more committed and get positions that are more attractive, even from a financial standpoint.³

However, subspecialization may have a negative impact on the Resident's general training, with implications for patient care, and this should be taken into consideration when planning training programs.

In different locales in Europe⁵ and Canada,⁶ the same concern exists with regard to specific training and specialization in spine surgery, but no specific training programs have yet been developed.

In Spain, under Law 44/2003, the beginnings of regulatory support for the concept of subspecialties has been seen: it defines the "array of competencies for advanced specialization that are more extensive and more in-depth than those acquired in the specialist training period and cover a portion of the content of one or more specialties."

Obviously, not every OST service in the country has a spine surgery unit or other orthopaedic surgery subspecialty units in its organogram. However, to be accredited for training Residents, an OST service must perform at least 25 spine surgeries per year (among other surgeries) to be awarded 1 Resident position and 75 for 3 Resident positions. Many teaching units around the country have 1 or more Residents, however—even though none of its staff members perform spine surgery.

It seems clear that these deficiencies are made up for partly through rotations at other Centres and partly through rotations in Neurosurgery—a specialty that has some spine pathologies in common with OST.

However, the basic or fundamental training appropriate for a general orthopaedic surgeon is one matter, and specialty training in surgery of the spine or some other area is another matter.

In this regard, the concept expressed in Law 44/2003 is an attempt to recognize a subspecialty that, because of its complexity or need for dedication, requires qualified experts. It appears that *a posteriori* recognition to obtain this qualification will involve accrediting a number of years spent devoted to this pathology, as well as an evaluation of competence in the subject matter. It will also be possible to obtain this qualification by completing a 1- to 3-year "programmed" training in this subject matter at a teaching unit that is accredited for the subspecialty in question.

It seems easy to accredit someone (like the man writing this article) who has 10 years of almost exclusive dedication to spine surgery, including patient care, teaching, and research. In my opinion, however, it is not so easy to accredit a teaching unit (the one where I myself work in public health, for example) as meeting the criteria to be suitable for training specialists in spine surgery.

With regard to this last concern, the collaboration of the pertinent scientific societies seems crucial; in my opinion, they are the ones best able to evaluate the abilities of staff on a service or teaching unit in any given subspecialty as well as the case load, which is easy to obtain from National Health System records.

Emphasizing further this last aspect and looking deeper into the need for subspecialization, it has been confirmed in the United States that training and subspecialization in some areas of orthopaedic surgery have a definite impact on the results obtained, as revealed by Medicare data and data recently published in the *British Medical Journal*.⁷

Spine surgery training in Spain

In December of 1996, I finished my Residency at *Hospital Universitario La Paz* in Madrid where, then as now, the spine surgery unit is recognized nationally and internationally as a prestigious unit. At that time, there were very few OST services in the country that were engaged in patient care, teaching, and research activity related to spine surgery. Nowadays, however, there are many services where the more common pathological processes of the spine are satisfactorily resolved, even in level III hospitals.

The question is whether these Centres have the capacity to become teaching units or whether they are capable of handling only the most common pathologies and, therefore, would not meet the criteria for becoming an accredited teaching unit for specific training in spine surgery.

In my opinion, these units should not only certify a certain number of spine procedures but also meet a set of requirements as to variety in their field of intervention (degenerative lumbar and cervical spine, trauma, tumours, deformities), quality and adaptability, research, the cost-effectiveness ratio for their procedures, etc. All of this would encourage us to be more objective when accrediting training units, and if we conducted studies similar to those done in the United States⁷ using data obtained from National Health Service databases, we probably could come closer to doing a proper assessment of the most efficient units or services. In view of these data, it seems logical to think that the more specialization, the better the results.

I maintain that, if we are strict and we “tighten up the net,” there are few OST teaching units in the country that would meet the criteria for training specialists in this particular subspecialty, according to Law 44/2003.

As mentioned above, the pertinent scientific societies—in this case, GEER (*Grupo para el Estudio de las Enfermedades del Raquis*) [Spinal Diseases Research Group]; SECOT (*Sociedad Española de COT*) [Spanish Orthopaedic Surgery and Traumatology Society]; the national councils for the specialty; and the government—should determine, in a manner similar to the way it is done in the United States, what units or services should be approved for training surgeons in spine surgery as a subspecialty.

The future: specialty in spine surgery? Joint training with Neurosurgery?

Everyone knows that, among both neurosurgeons and OST specialists, there are physicians dedicated either preferentially or exclusively to spine surgery. In many cases, their fields of intervention converge, especially in degenerative pathology of the lumbar and cervical spine.

As minimally invasive techniques for brain surgery (tumours, vascular, etc.) have been developed, many neurosurgeons have seen their territory invaded by interventional radiology, and as a result, they are “pushed” into a surgery that, previously, many did not perform. In many cases, especially in large hospitals, similar surgical procedures are undertaken by two different specialties, and this sometimes

creates “jealousies and competition” that are, in my opinion, unnecessary.

While it seems clear that some pathologies are addressed almost exclusively by OST (deformities) and others by Neurosurgery (intramedullary tumours), many others—degenerative pathology, in particular—are routinely addressed by either one. In some hospitals, spine surgery is performed primarily by OST and in others by Neurosurgery, depending on the hospital’s custom, the training of one or the other, and the physicians’ concerns. In my opinion, the question is not who does what better or who should do what but whether criteria should be standardized.

Once again, the appropriate scientific societies have much to say on the matter—not only they, however, but also supervisors at the National Health Service who have to evaluate the results of one or the other in terms of criteria for quality, results, cost-effectiveness, etc., and to establish criteria that lead to rational interventions.

In my judgment—and I have no doubt that it will be this way in the future—pathology of the spine should be considered almost an independent specialty, and this is what the scientific societies in Europe are declaring.

If we bear in mind that both surgical and non-surgical pathology of the spine 1) include diseases quite diverse in nature (degenerative, tumour, trauma, deformities, among others); 2) can present at any stage of life (children, adults, the elderly); 3) consume a significant amount of National Health Service resources; and 4) give rise to problems leading to disabilities and health issues that take up a significant portion of the system’s resources, it does not seem far-fetched for public officials to give preferential consideration to this specialty.

If we compare the case load of a Thoracic Surgery service at a large hospital, for example, to the case load of an OST spine surgery unit—or, even better, the OST unit and Neurosurgery combined—it will be easy to understand what we are talking about.

One possible action in the future—if the concept of Law 44/2003 is finally carried out—could be specialization in spine surgery following the appropriate compulsory training. This would take a long time, apparently, since there are currently no units available or accredited where training for specialists in this area could be offered.

In summary, currently, in Spain, training in spine surgery is prompted by personal interest and carried out on an individual basis through rotations or training in prestigious, nationally or internationally accredited units—not in any regulated program.

In my opinion, the future, according to Law 44/2003, will inevitably take us down the path of subspecialties, which are fundamental to the development of quality healthcare and research activity in spheres such as spine surgery. This training must be conducted in units that are accredited for such purposes, and the scientific societies, national specialty councils, and National Health System supervisors or the Communities must have a voice and vote in identifying those Centres, units, and professionals who meet the appropriate criteria.

We must not forget that the future (still far off) may lead us to consider pathology of the spine not only a subspecialty—which it has been, de facto, for years now—but also, in a broader sense, an independent,

multidisciplinary specialty grouping OST specialists, Neurosurgery, and even Rehabilitation.

Evidence level

Expert opinion. Evidence Level V.

Protection of human and animal subjects

The authors declare that no experiments were performed on humans or animals for this investigation.

Confidentiality of Data

The authors declare that no patient data appears in this article.

Right to privacy and informed consent

The authors declare that no patient data appears in this article.

Conflicts of interest

The authors have no conflicts of interest to declare.

References

1. Munuera Martínez L. Nuevas perspectivas en la formación especializada. *Rev Esp Cir Ortop Traumatol.* 2011;55:70–2.
2. Coleman SS. Special qualification: its implication for education and practice. *J Bone Joint Surg.* 1978;60:860–3.
3. Simon MA. Fellowship accreditation and certification methodologies of other specialities. *J Bone Joint Surg Am.* 1998;80:1843–50 [commentary].
4. Nestler SP. Fellowship accreditation and certification methodologies of other specialities. *J Bone Joint Surg Am.* 1998;80:1843–50.
5. Boszczyk BM, Mooij JJ, Schmitt N, Di Rocco C, Fakouri BB, Lindsay KW. Spine surgery training and competence of European Neurosurgical Trainees. *Acta Neurochir.* 2009;151:619–28.
6. Toyota BD. Spinal subspecialization in post-graduate neurosurgical education. *Can J Neurol Sci.* 2004;31:204–7.
7. Hagen TP, Vaughan-Sarrazin MS, Cram P. Relation between hospital orthopaedic specialization and outcomes in patients aged 65 and older: retrospective analysis of US Medicare data. *Br Med J.* 2010;340:165–73.