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Specific training in coloproctology: cross-sectional cohort study through the Young Group of the Spanish Association of Coloproctology

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ABSTRACT

Introduction: Specific training at surgical super-specialities and its objective evaluation is a challenge nowadays in order to measure the potential benefits that it might add.
Material and methods: An online survey addressed by the ''Grupo Joven de la Asociación Española de Coloproctología'' has been performed in order to evaluate the level of formation achieved specifically at colorectal surgery.
Results: 128 surgeons participated, representing 81 colorectal surgery units. Mean satisfaction after the period of formation was moderate to high in 84% of the ones polled. The main points of improvement were the realization of advanced surgical techniques (52%) and academic questions (45%). The big part of the respondents has performed simple proctologic procedures (98%) and oncological open colic resections (100%) during their training period, observing the scarcity of related pelvic floor procedures (20%) and diagnosis techniques (10–45%). Scientific production (31,5%) and presentation of studies at congresses (82,8%) have been moderated. No differences between accredited units and non-accredited units have been observed.
Conclusions: Specific formation in colorectal surgery is appropriate, with a high level of simple procedures and open surgery performed by personal at formation. In view of these

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results, it seems logical to think that even though is necessary a progress in the formation of minimal invasive and diagnosis techniques.

Formación específica en Coloproctología: estudio de cohortes transversal a través del Grupo Joven de la Asociación Española de Coloproctología.

Palabras clave:
Coloproctología
Proctología
Educación
Investigación
Formación académica

RESUMEN

Introducción: : La formación específica en las super-especialidades quirúrgicas y su evaluación objetiva suponen un reto actualmente a la hora de valorar los potenciales beneficios que esta puede aportar.

Material y métodos: Se ha realizado una encuesta *online* dirigida a través del Grupo Joven de la Asociación Española de Coloproctología con el objetivo de evaluar el nivel de formación obtenido de forma específica en el ámbito de la cirugía colorrectal

Resultados: : Participaron 128 cirujanos, representando a 81 unidades de cirugía colorrectal. La satisfacción media tras el periodo de formación fue moderada o elevada en el 84% de los encuestados. Los principales puntos a mejorar fueron la realización de técnicas quirúrgicas avanzadas (52%) y cuestiones académicas (45%). La gran mayoría de los encuestados ha realizado procedimientos proctológicos sencillos (98%) y resecciones cólicas oncológicas abiertas (100%) durante su periodo de formación, objetivando una escasez de procedimientos relacionados con la patología del suelo pélvico (20%) y de técnicas diagnósticas (10–45%). La producción científica (31,5%) y la presentación de trabajos en congresos (82,8%) ha sido moderada. No se han objetivado diferencias al comparar estos resultados entre las unidades acreditadas y no acreditadas.

Conclusiones: La formación específica en cirugía colorrectal resulta adecuada, con un nivel elevado de procedimientos sencillos y mediante abordaje abierto realizados por el personal en formación. A la luz de estos resultados, parece lógico pensar que aún así es necesario un progreso en la formación en técnicas mínimamente invasivas y diagnósticas.

Introduction

Coloproctology is considered one of the broadest surgical super-specialisations within general surgery, and in some countries such as the United States it is a specialty in its own right, with independent training programmes.[1] In epidemiological terms it also represents a high care burden, since many pathologies that are included within it are highly prevalent. These include colorectal cancer, diverticular disease, pelvic floor pathology and proctology,[2,3] all of which involve a wide variability of procedures.

Given the above, a significant therapeutic arsenal with an increasingly greater technological role in surgical processes has developed. Added to this is the fact that patients present highly different profiles and requirements, with diverse points of view and perspectives, resulting in comprehensive training in colorectal surgery representing an increasingly greater challenge. Despite all this and bearing in mind the ministerial document that regulates the requirements for obtaining the title of surgeon in Spain, we believe this development is not being sufficiently covered.[4]

In order to offer patients guarantees in terms of satisfaction and results, it is advisable that training during the general surgery residency and super-specialisation in colorectal surgery be subject to continuous evaluation. Scientific societies, in this case the Spanish Association of Coloproctology (AECP for its initials in Spanish), in coordination with the Spanish Association of Surgeons (AEC), would be the appropriate organisations to promote this training monitoring, which should be dynamic and adapt to social, clinical and training needs.[5]

Against this backdrop and with the aim of determining the national level of academic and technical training in Colorectal Surgery, a cross-sectional descriptive study was designed, conducted through a survey, within the Young Group of the AECP (GJ-AECP), to assess the current situation in Spain of young surgeons with special dedication to Coloproctology.

Material and methods

Study design

Since professionals not patients participated in this study we considered that it did not require the approval of a Local Ethics Committee for its implementation. Despite the voluntary nature of participation, the explicit consent of the subjects who answered the survey was collected for the archiving,

analysis and publication of the data resulting from their responses.

When preparing this project and this manuscript, the recommendations included in the checklist for preparing surveys conducted via the Internet or telematic methods (Checklist for Reporting Results of Internet E-Surveys - CHERRIES)[6] were taken into account.

Target population

The survey was designed for surgeons who had completed the general surgery specialty who had a particular interest in colorectal surgery, with the age limit set at 45 years.

Survey preparation

Within the GJ-AECP, a working group was created consisting of 6 surgeons who developed the survey in different stages. First, three of them (CC, OC and EP) made a first draft shared with three other surgeons (TF, TC and MR), who came up with a series of recommendations that were discussed and incorporated into the survey. These modifications were communicated to the group and a definitive survey was established jointly, with at least 90% consensus for the final approval of its content and form. Its definitive version was developed using the Google Forms® platform.

The survey consisted of 84 questions divided into 4 areas: demographic and basic training data, training stage during residency and training stage after residency. Within this last phase, an attempt was made to obtain information on fellowship training in Spain.

The survey questions were essentially aimed at gathering information on surgical training, trying to assess both volume and complexity; and also academic training, collecting information on participation in conferences, courses, research projects, scientific works and doctorates.

The complete content of the survey can be consulted as supplementary material 1.

Survey distribution

Due to the nature of the target population, the GJ-AECP forum was chosen as the perfect forum for disseminating the survey through its usual communication tools: email and chat in an instant messaging app for smart phones.

The survey was maintained for a period of 4 months during which fortnightly reminders were made to encourage the greatest possible participation, except for the last 15-day period, when weekly reminders were sent out.

Objectives and measurement variables

Study objectives were as follows:

- Main objective: to establish the degree of training present among young colorectal surgeons in Spain, in practical terms (procedures performed as first surgeon), theoretical and academic (acquired knowledge), by obtaining a series of objective data.
- Secondary objective: to determine the degree of satisfaction among young colorectal surgeons in Spain regarding the training received, using a Likert-type scale with five different categories.

Statistical method

A descriptive analysis of demographic and clinical variables was performed. Categorical variables were presented as percentages and frequencies. The distribution of continuous variables was evaluated using the Shapiro-Wilk statistic and described as mean and standard deviation if they followed a normal distribution or as median and interquartile range (IQR) otherwise.

The association between the variables collected and the study's objective variables was performed using Pearson's Chi-square test or Fisher's exact test, as appropriate, in the case of categorical variables, and for continuous variables, using the Student's T test for independent samples or Mann-Whitney U test, respectively, depending on whether or not their distribution conformed to the normal distribution.

Results

Respondent characteristics

The survey was sent to 140 surgeons who met the inclusion criteria for the study. 94% of the participants were exclusively dedicated to colorectal surgery, representing 81 coloproctology units.

Of the total respondents, 50.4% had completed a proctology-related master's degree, 8% had a European Board of Coloproctology qualification, 22% had completed a fellowship and 35% were PhDs (Table 1).

Surgical and academic training during residency

Most professionals (83.6%) knows with the ministerial document during their residency, which specifies the objectives and procedures to be developed during this period. 37% considered that these had been achieved or surpassed, and 84% considered their training in coloproctology to be satisfactory or very satisfactory (Table 1).

Table 2 shows a comparison of compliance with the specialty programme and the degree of satisfaction during this stage in accredited and non-accredited units, with no differences between the two.

Within the proctology performed during this period, haemorrhoidal surgery was one of the most frequently performed interventions, with classical Milligan-Morgan hemorrhoidectomy and rubber band ligation as first line treatment. The rest of the procedures, such as stapled haemorrhoidopexy, dearterialisation, Ferguson-type hemorrhoidectomy or sclerosis, are less frequently used techniques (Fig. 1A). The same applies to the approach to fistula, highlighting the great variability of techniques to address it (Fig. 1B).

Table 1 – Demographic characteristics, current position and some professional data on voluntary survey participants.

Variables		n (%)
Age*		36 (SD 3)
Sex	Man	52 (41)
	Woman	76 (59)
Dedication to coloproctology	No	8 (6)
	Yes	119 (94)
	>5 years	54 (43)
AECP member		96 (76)
GJ-AECP member		83 (65)
Time since the end of the residency*		6 (SD 3)
Residency in an accredited unit		32 (25)
Currently works in an accredited unit		48 (38)
Level of training achieved ¥	Master	72 (57)
	Board	10 (8)
	PhD	44 (35)
	Fellow	28 (22)
PhD during the residency		6 (5)
Ministerial planning objectives fulfilled	Very distant	20 (16)
	Close	59 (46)
	Fulfilled	8 (6)
	Surpassed	31 (24)
	Very much surpassed	9 (7)
Degree of satisfaction	Highly dissatisfied	1 (1)
	Dissatisfied	13 (10)
	Indifferent	7 (5)
	Moderately satisfied	63 (50)
	Highly satisfied	43 (34)
Aspects to be improved¥	Basic surgical techniques	43 (34)
	Advanced surgical techniques	66 (52)
	Theoretical knowledge	28 (22)
	Academic issues	57 (45)
	Course and congress limitations	22 (17)

GJ-AECP: Young Group of the Spanish Association of Coloproctology; SD: Standard deviation.
* Data represent mean and standard deviation.
¥ Multiple choice question. Percentages can therefore add up to more than 100% in this category of the table.

Table 2 – Level of accomplishment with the specialty programme and degree of satisfaction during residency in accredited or non-accredited units.

		Accredited unit	Non-accredited unit	p
Ministerial planning objectives fulfilled	Very distant	2 (6.3%)	18 (19.0%)	.473
	Close	16 (50.0%)	43 (45.3%)	
	Fulfilled	3 (9.4%)	5 (5.3%)	
	Surpassed	8 (25.0%)	23 (24.2%)	
	Very much surpassed	3 (9.4%)	6 (6.3%)	
Degree of satisfaction	Highly dissatisfied	0 (0%)	1 (1.1%)	.732
	Dissatisfied	2 (6,3%)	11 (11.6%)	
	Indifferent	1 (3.1%)	6 (6.3%)	
	Moderately satisfied	16 (50.0%)	47 (49.5%)	
	Highly satisfied	13 (40.6%)	30 (31.6%)	

Regarding pelvic floor pathology, a high percentage (95.4%) of respondents did not see or perform any intervention of this type, with sphincteroplasty being the most commonly performed intervention (Fig. 1C).

Regarding diagnostic tests, more than half of respondents did not perform any of them, with endoanal ultrasound being the most commonly performed (Fig. 1D).

Regarding colorectal surgery, the most frequently performed interventions were open and laparoscopic right sigmoidectomy and colectomy; almost half of respondents saw more than 75% of the procedures of this type via laparoscopy, despite which 15.7% did not perform any laparoscopic right colectomy during this period (Fig. 2). In Table 3 we observe that there were no statistically significant differences in procedures performed between surgeons who had completed their residency in centres with accredited units and those with units not accredited by the AECP.

82.8% of respondents attended and presented a paper as first author at a national conference, while only 28% did so at

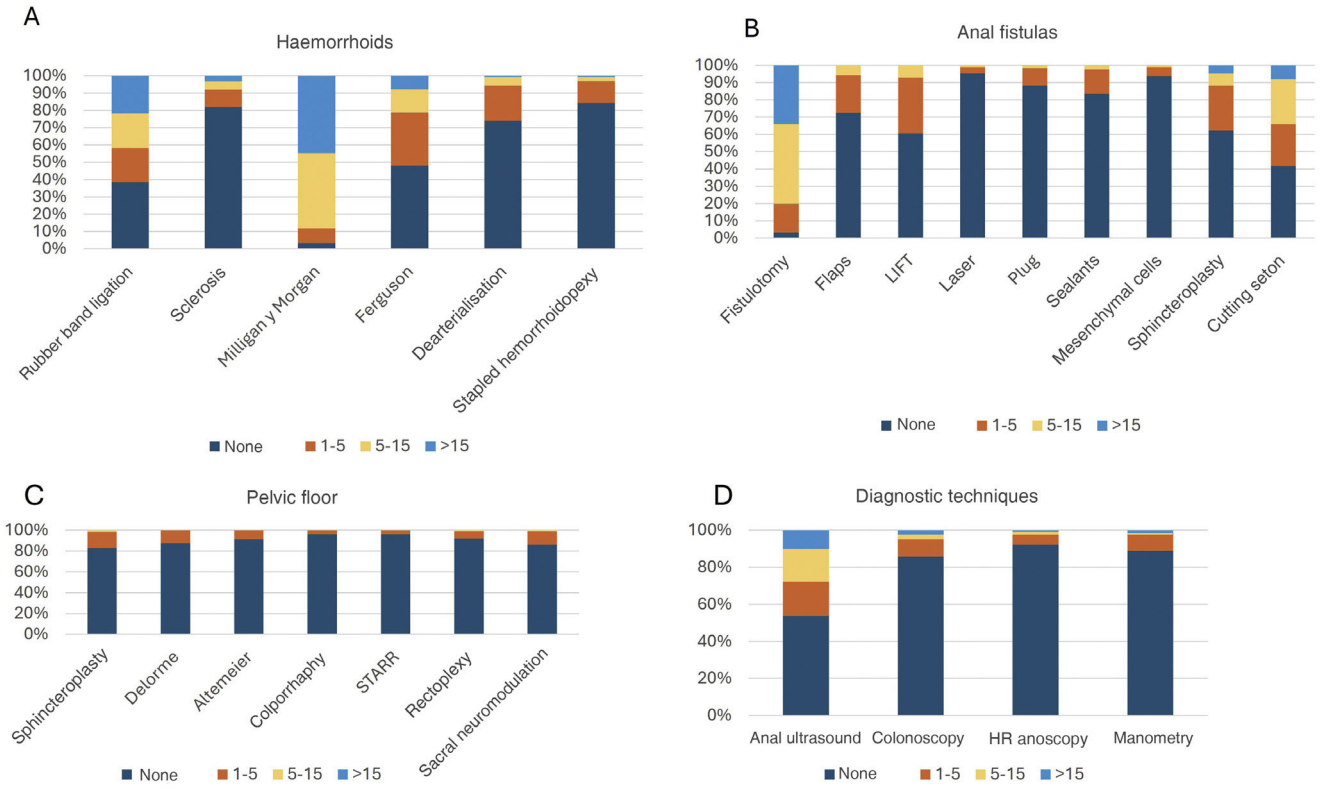

Fig. 1 – Surgical techniques performed during the residency period in haemorrhoidal pathology (A), Anal fistula (B), Pelvic floor pathology (C) and Diagnostic techniques (D).

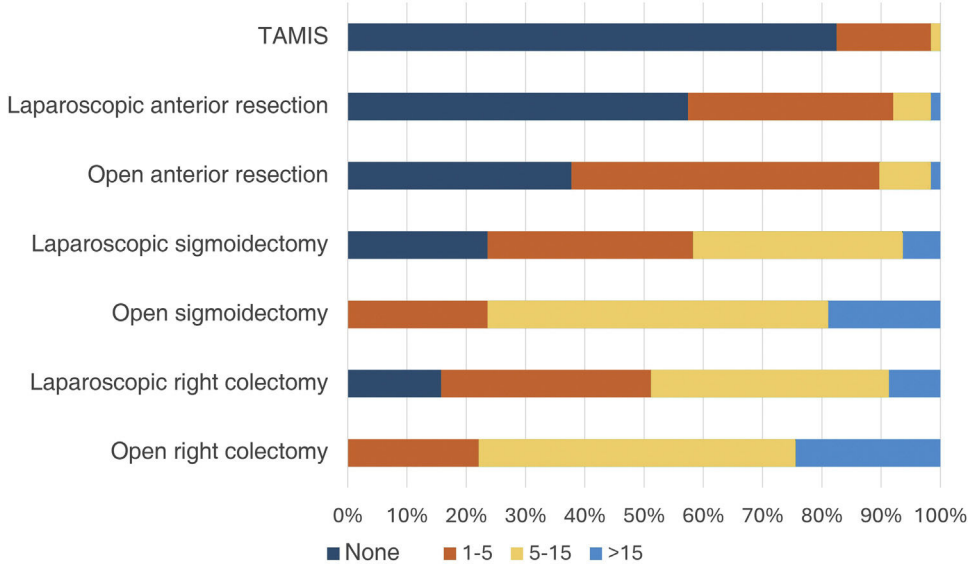

Fig. 2 – Colorectal surgery procedures performed during the residency period.

an international conference. 31.5% published a scientific article in an indexed journal, and 58.3% participated as principal investigator in a scientific project. The overall score given by respondents in this section to super-specialised training was 7.89 (1.14). As in the previous cases, the comparison between accredited and non-accredited units in terms of academic objectives did not show any differences between the two (Table 4).

Table 3 – Comparison of results of surgeries performed by respondents who did their residency in accredited or non-accredited units.

	Accredited unit	Non-accredited unit	p
No rubber band ligation	7 (21.9%)	42 (44.2%)	.169
More than 15 Milligan and Morgan haemorroidectomies performed	12 (37.5%)	45 (47.4%)	.385
No THD performed	19 (59.4%)	75 (79.0%)	.077
No flap performed	27 (84.4%)	65 (68.4%)	.217
More than 15 fistulotomies performed	11 (34.4%)	32 (33.7%)	.216
No sphincteroplasty performed	27 (84.4%)	78 (82.1%)	.709
No rectopexy performed	29 (90.6%)	88 (92.6%)	.718
No laparoscopic right colectomies performed	2 (6.3%)	18 (19.0%)	.229
More than 15 open sigmoidectomies	6 (18.8%)	18 (19.0%)	.775
No open anterior resection	12 (37.5%)	36 (37.9%)	.692
No anal ultrasound performed	14 (43.8%)	54 (56.8%)	.424

Table 4 – Comparison of scientific activity of respondents who did their residency in accredited or non-accredited units.

		Accredited unit	Non-accredited unit	P
Active participation in national Coloproctology congresses	Studies as first author	26 (83.2%)	81 (85.3%)	.236
	Attendance	4 (12.5%)	8 (8.4%)	
	Never attended	2 (6.3%)	6 (6.3%)	
Active participation in international Coloproctology congresses	Studies as first author	10(31.3%)	27 (28.4%)	.888
	Attendance	5 (15.6%)	12 (12.6%)	
	Never attended	17 (53.1%)	56 (59.0%)	
Total number of presentations of any type (poster. oral and video) presented on Coloproctology in national and international congresses	More than 50	1 (3.1%)	4 (4.2%)	0.229
	Between 30 and 50	1 (3.1%)	8 (8.4%)	
	Between 15 and 30	3 (9.4%)	24 (25.3%)	
	Less than 15	24 (75%)	52 (54.7%)	
	None	3 (9.4%)	7 (7.4%)	
Awards or scholarships obtained in the field of Coloproctology during the residency	Yes	9 25 (28.1%)	27 (28.4%)	.974
	No	23 (71.9%)	68 (71.6%)	
Author of scientific works as first author during the residency	Yes	18 (56.3%)	37 (39.0%)	.088
	No	14 (43.8%)	58 (61.1%)	
Has completed a PhD	Yes	10 (31.3%)	38 (40.0%)	
	No	22 (68.8%)	57 (60.0%)	
PhD in coloproctology topics	Yes	5 (38.5%)	23 (51.1%)	.421
	No	8 (61.5%)	22 (48.9%)	
University Associate Professor	Yes	7 (21.9%)	36 (37.9%)	.098
	No	25 (78.1%)	59 (62.1%)	
Global position regarding the academic field within the professional career	I'm not interested	0 (0%)	3 (3.2%)	.642
	I'm interested. but I don't have the proper training	8 (25.0%)	20 (21.1%)	
	I'm interested. but I don't develop the ideas I have because they're not original	2 (6.3%)	13 (13.7%)	
	I'm interested. but I don't have the technical means. funding and/or sufficient contacts to be able to carry out my projects	14 (43.8%)	36 (37.9%)	
	I'm interested and I'm satisfied with the level I've acquired so far	8 (25%)	23 (24.2%)	

Specific surgical and academic training in coloproctology

Twenty nine respondents (22.8%) completed a fellowship in colorectal surgery, 72.4% in Spain and 27.6% abroad.

Within this group, 64.3% met their objectives, with 77.8% considering the duration to be adequate, with the duration being one year in most cases (82.1%).

50% of respondents who completed a fellowship had their own medical office, and the largest number of interventions performed were those aimed at treating colon cancer, with 70.4% stating that they had performed more than 15 procedures of this type during this period. This was not the case for rectal tumours, as more than half of the super-specialised respondents (55.5%) performed less than 5 procedures of this type. The same occurred for pelvic floor procedures, with 74.1% having performed less than five during this period. As for complex proctology, the distribution was more homogeneous, with around 30% performing more than 15 procedures of this type, another 30% between 5 and 15, and 34% less than 5.

82% of the respondents in this group attended and presented a paper as first author at a national conference, and 52% did so at an international conference. Regarding the number of scientific publications, 44.4% published an article in a scientific journal as the main author, and 37.1% as a co-author, with the average number of articles published as the main author being 2.2 (3.3) and 3.3 (3.7) as a co-author.

The overall score given by the respondents in this section to sub-specialised training was 7.9 (1.1).

Discussion

The overall subjective assessment measured by a visual analogue scale among the group of young colorectal surgeons in Spain achieved a high rating. Despite this, the survey enabled us to detect areas of optimisation that could lead to new lines of work and modifications in the ministerial document regulating specialised training. Post-residency training and specialisation areas could also be developed, thus driving an improvement in colorectal surgery training in Spain.

In general, basic surgical procedures are performed to a moderate extent, such as Milligan-Morgan hemorrhoidectomy or fistulotomies, as well as open oncological colon resections. However, other procedures such as those related to pelvic floor pathology or complex techniques for the treatment of fistulas were performed by a low percentage of respondents. These results are comparable to those published by Targarona et al.[7] after conducting a national survey, which showed that, although the figures were in line with ministerial recommendations, more proctological procedures were performed than colon or rectal resections.[7] These aspects should be taken into account when evaluating residents who complete their training stage and, in the event that the established ministerial objectives are not met, identifying any training deficiencies that the centres responsible for this important stage may have.

Training in colorectal surgery requires a supervised learning curve that guarantees adequate patient care and future autonomy in performing procedures by the specialist. Unfortunately, there is no guarantee of good results at the end of residency,[8,9] and many surgeons decide to complement this training with specific training programmes in coloproctology. Paradoxically, according to the results of this survey, the completion of a super-specialisation does not entail a significant increase in the surgical volume of less prevalent and complex pathologies. This could be considered as one of the clear pointers for improvement in training to be undertaken in the future.

In the German study by Huber et.al.,[10] an interesting sub-step method is discussed as a means for residents to perform small steps of more complex surgeries. In reality, this method could be implemented at all levels of training, simply by modifying the complexity of the procedures, and adapting the different steps, together with the degree of supervision required.

Although the number of surgeries performed during residency may be far from ideal, the level of publications and communications related to coloproctology performed is high. The average number of publications during residency ranges between 4 and 5, which is high.

Another potentially striking aspect is the fact that accreditation of the Coloproctology Units is not a conditioning factor in any of the sections collected. Since no precise data in this regard exists caution should be taken here. Furthermore, it should be noted that national accreditation is voluntary, resulting in hospitals with a large volume and a significant tradition in Colorectal Surgery not having the said accreditation, and vice versa.

One of the limitations of this study is that no pilot test was conducted for the use of the questionnaire before distributing it to the target population. Also, the sample to which the survey was sent represents a small proportion of the total target population that should have been sampled, since in reality this should have been all residents, not just those with a special dedication and interest in Colorectal Surgery. The age chosen as the cut-off point could also be considered a study limitation, as some of the surgeons surveyed completed their training years ago, and much variability could have ensued.

Despite this, we consider that this study has strengths, such as the fact that the data was collected in a standardised manner and all respondents completed all the items in the survey, with representation from a large number of hospitals and different units in Spain.

We can conclude that the Coloproctology Units in Spain offer sufficient opportunities for residents to achieve a reasonable basic training and that only 10% of respondents are dissatisfied with their training. However, additional efforts are needed to achieve better training in coloproctology, with the ideal being to achieve 3–5 years of training in advanced units and to improve important aspects, such as diagnostic techniques, or some minimally invasive surgical techniques that are currently a more common reality.

Annex 1. Members of the Young Group of the Spanish Association of Coloproctology (GJ-AECP): Working group on specialized training

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