



*Union Européenne des Médecins Spécialistes
European Union of Medical Specialists
Since 1958: 35 sections among which Vascular Surgery*



EBVS-Q

European Board of Vascular Surgery Qualification Examination

*Julian Scott, David Bergqvist, Examination
Committee, Armando Mansilha, Secretary General,
Hajo van Bockel, President Section Vasc Surg UEMS*



FEBVS Examination (Part II)

Four parts:

- | | |
|---|---------|
| 1. Clinical case analyses | 60 min. |
| 2. Evaluation scientific competence | 30 min. |
| 3. Technical skills assessment | 120 min |
| 4. Overall assessment and surgical experience (including logbook) | 30 min. |

NB: Eligibility for Part II required (e.g. Certificate of Completion of Surgical Training)



FEBVS: examinations

Traditional approach Surgical assessment:

- Written / oral exams
- Logbook (operative experience)
- Assumptions:
 - technical performance does not require assessment
 - technical skill: small fraction of the repertoire (e.g. clinical, teamwork, etc)
 - experience (numbers) correlates with technical competence

Seems illogical



Any correlation current examination techniques with surgical skill?

- 2002/3: Pilot assessment of technical skill (initiatives: VA Pandey, JHN Wolfe, CD Liapis and D Bergqvist, on behalf of the European Board of Vascular Surgery)



Four aspects of validity

- **Content Validity**
 - Bench stations: dissection, anastomosis, knot tying
- **Construct Validity**
 - Marks for: generic and procedure specific skill
- **Inter-observer Reliability**
 - Candidates marked by two independent examiners
- **Internal Consistency**
 - Correlate operative score (dissection vs anastomosis and knot tying vs total operative scores)
 - Correlate technical skill: log book, viva voce performance

() V. A. Pandey, J. H.N. Wolfe, C. D. Liapis and D. Bergqvist, on behalf of the EBVS. The examination assessment of technical competence in vascular surgery. British Journal of Surgery 2006; 93: 1132-1138.*



Dissection

Saphenofem junction



Anastomosis

Tibial artery



Knot Tying

Hand movements



*Electromagnetic motion
analysis*



Endovascular Skills Examination Methods

Combination of OSATS global rating scale and Task Specific Rating:

- Pandey & Wolfe, 2006
- ICEPS: Imperial College Evaluation of Procedure Specific Skill



Technical Skills Examination Methods (*):



Generic skill - OSATS

Procedural skill - ICEPS

Objective structured assessment of technical skill – Global rating scale

Surgeon code: _____ Procedure: _____ Assessor: _____ Date: _____

Please circle the candidate's performance on the following scale:

	1	2	3	4	5
Respect for tissue	1 Frequently used unnecessary force on tissue of caused damage by inappropriate use of instruments	2	3 Careful handling of tissue but occasionally caused inadvertent damage.	4	5 Consistently handled tissues appropriately with minimal damage.
Time and motion	1 Make unnecessary moves.	2	3 Efficient time/motion but some unnecessary moves.	4	5 Clear economy of movement and maximum efficiency.
Instrument handling	1 Frequently asked for the wrong instrument or used an inappropriate instrument	2	3 Competent use of instruments although occasionally appeared stiff or awkward.	4	5 Fluid moves with instruments and no awkwardness.
Suture Handling	1 Awkward and unsure with repeated entanglement, poor knot tying and inability to maintain tension.	2	3 Careful and slow with majority of knots placed correctly with appropriate tension.	4	5 Excellent suture control with placement of knots and correct tension.
Flow of operation	1 Frequently stopped operating or needed to discuss the next move.	2	3 Demonstrated some forward planning and reasonable progression of procedure.	4	5 Obviously planned course of operation with efficiency from one move to another
Knowledge of procedure	1 Insufficient knowledge. Looked unsure and hesitant.	2	3 Knew all important steps of the operation.	4	5 Demonstrated familiarity with all steps of the operation.
Overall performance	1 Very poor	2	3 Competent	4	5 Clearly superior
Quality of final product	1 Very poor	2	3 Competent	4	5 Clearly superior

Total score: _____

Imperial **Saphenofemoral Junction Ligation**

College

Evaluation of

Procedure-specific

Skill

Candidate no: _____

Assessor: _____

Date: _____

Please circle the candidate's performance on the following scale:

	1	2	3	4	5
Incision	1 Does not use surface landmarks. Inappropriate placement of incision. Poor handling of scalpel	2	3 Appropriate incision in terms of location and size. Looked at ease with scalpel	4	5 Uses surface landmarks to make an appropriately located and sized incision. Handled scalpel expertly
Dissection	1 Appeared unsure and excessively hesitant whilst dissecting. Caused trauma to tissues. Did not dissect into the correct anatomical plane.	2	3 Controlled and safe dissection into correct anatomical plane. Caused minimal trauma of tissues. Used instrument satisfactorily whilst dissecting.	4	5 Superior and atraumatic dissection into the correct anatomical plane. Confident handling of instruments whilst dissecting.
Retraction	1 Clumsy use of retractors. Did not allow visualisation of important structures making frequent changes to retractor setting.	2	3 Good use of retraction allowing visualisation of major structures. Had to change retractor position to visualise other structures	4	5 Excellent use of retractors. Allowed good visualisation of all necessary structures. Atraumatic
Tributaries	1 Could not or did not try to identify any tributaries	2	3 Identified all known tributaries. Did not seek other vessels	4	5 Identified all known tributaries. Sought other possible tributaries.
Haemostasis	1 Poor quality of knot tying. Knots frequently slipped or was excessively traumatic to vessels	2	3 Competent knot tying. Minimal trauma to vessels. Minimal blood loss.	4	5 Superior knot tying. Atraumatic. No knot slippage
SFJ Clearance	1 Did not identify the Saphenofemoral junction or excessively traumatic dissection around that vessel	2	3 Identified the Saphenofemoral junction. Safely dissected tissues away from vessel. Reasonable clearance of vessel. Minimal trauma	4	5 Identified the Saphenofemoral junction. Expert dissection of tissues off the vessels. Atraumatic. Cleared well proximally and distally.
SFJ Ligation	1 Did not ligate the SFJ or ligated CFV or caused excessive encroachment onto CFV after SFJ Ligation	2	3 Good knot tying whilst ligating the SFJ. Minimal encroachment onto CFV following SFJ ligation.	4	5 Excellent safe and secure ligation of the SFJ. Flush ligation with no encroachment onto CFV

Total score: _____

Regional Vascular Unit and the Department of Surgical Technology and Oncology, Imperial College School of Medicine, London, 2002

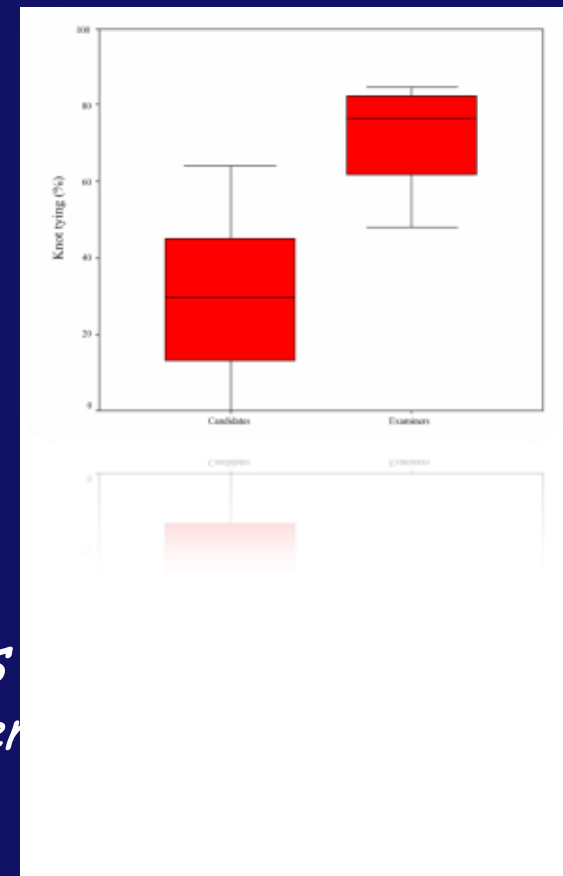
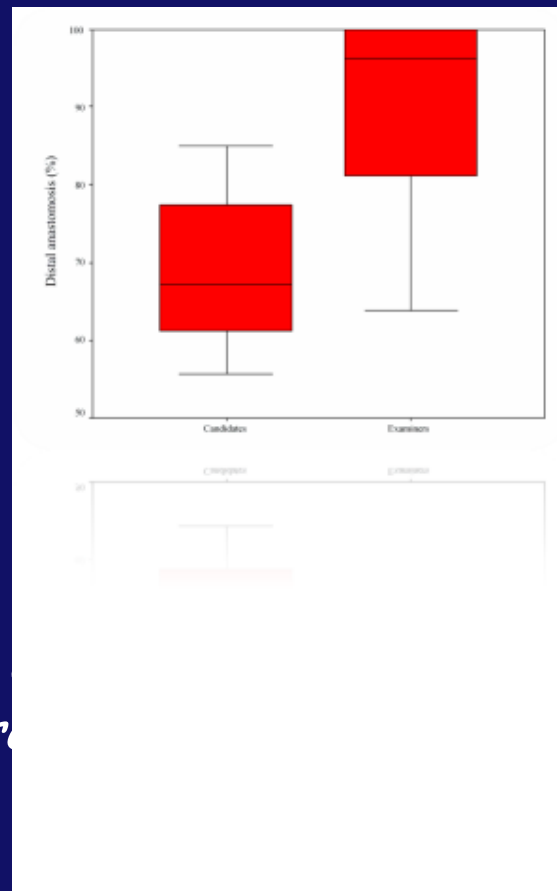
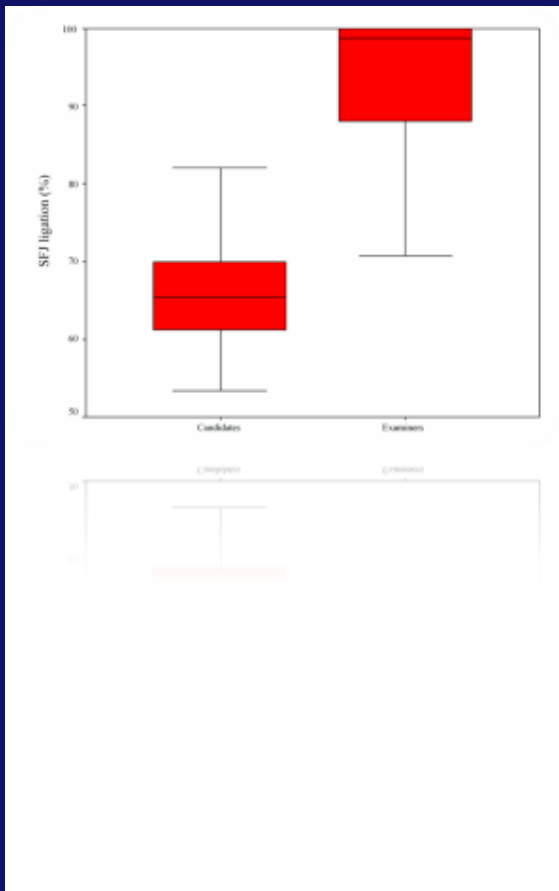


Validation: Technical Skills Part

SFJ Ligation

Distal Anastomosis

Knot Tying



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een



Interobserver reliability

Results from pilot examinations

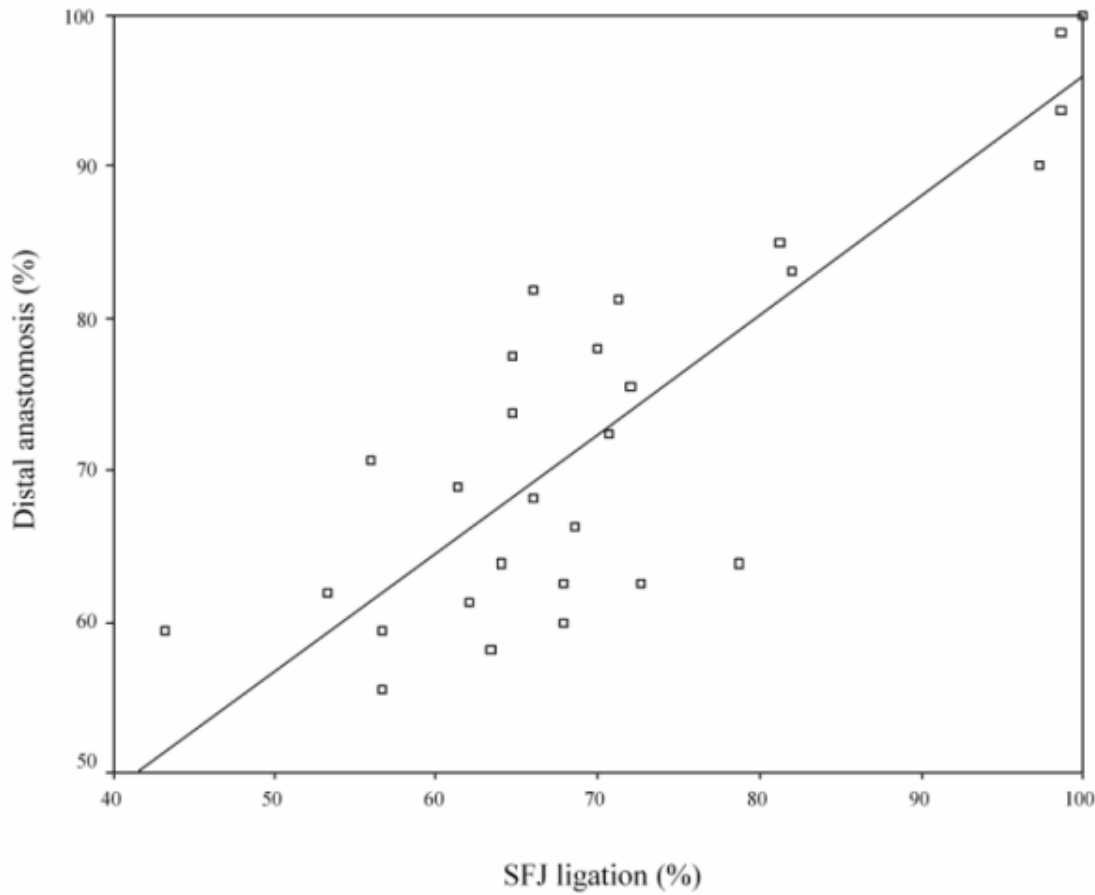
	Istanbul 2002	Dublin 2003
SFJ Ligation	<i>alpha = 0.83</i>	<i>alpha = 0.83</i>
Distal anastomosis	<i>alpha = 0.80</i>	<i>alpha = 0.89</i>
Total operative score	<i>alpha = 0.85</i>	<i>alpha = 0.92</i>

(alpha = Cronbach's alpha reliability coefficient; > 0.8 for high-stakes assessment required)



Internal Consistency: Anastomosis vs SFJ ligation

Participants performed consistently in the examination

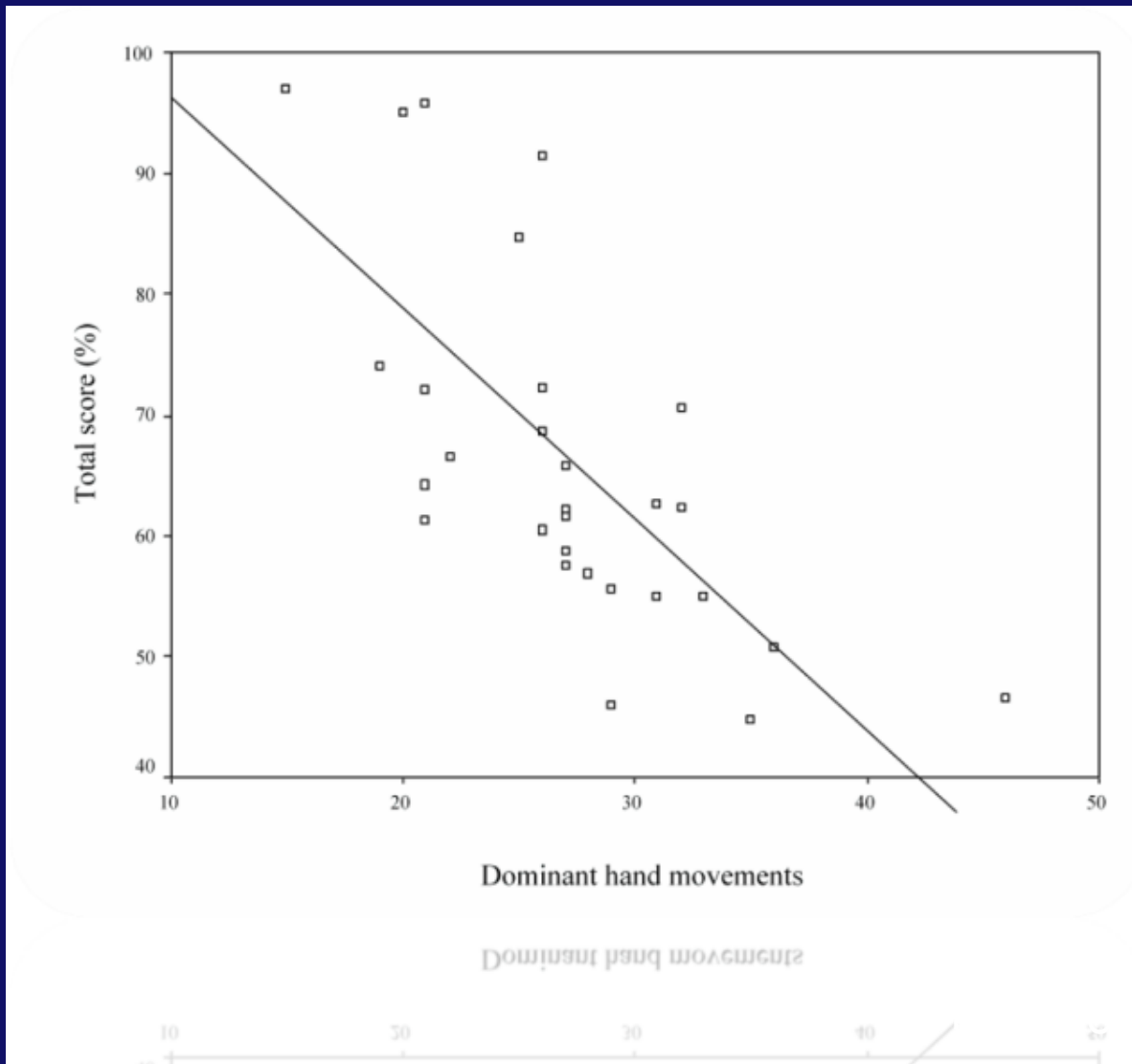


Spearman's rank correlation
0.79, $P < 0.001$



Internal Consistency: Total score vd Hand

Participants performed consistently in the examination

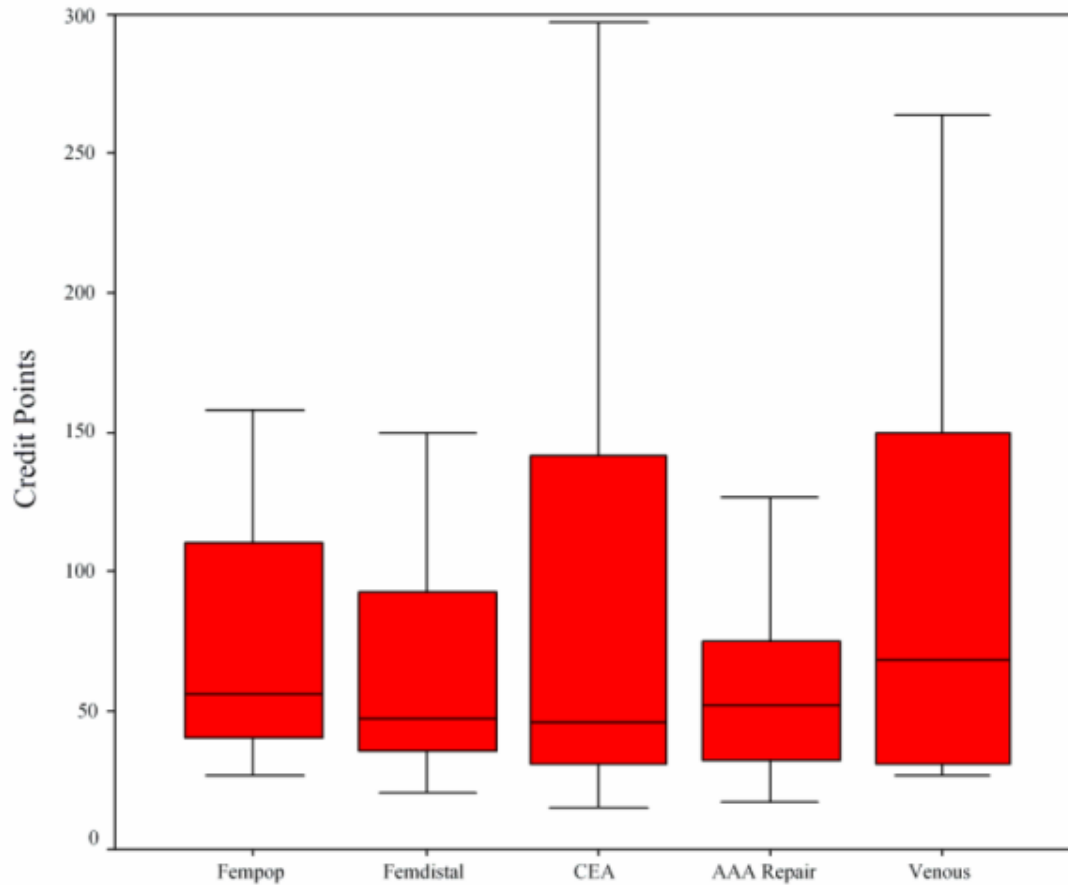


Participants performed consistently in the examination
Spearman's rank correlation
3, $p < 0.001$



Internal Consistency: Index Procedures

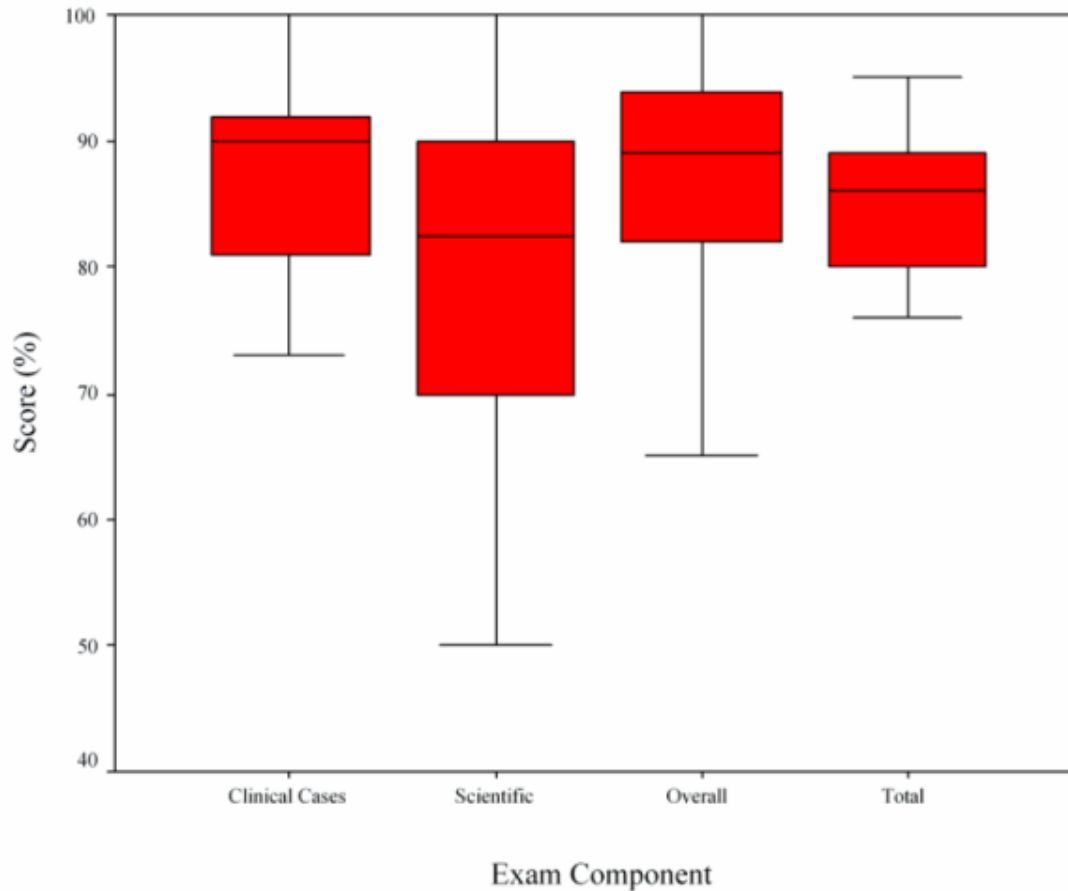
No Correlation with technical performance





Internal Consistency: Oral Exam performance

No Correlation with technical performance



Exam Component

Clinical Cases Scientific Overall Total



STRESS - machine ()*

Simulator for

Testing

Radiological and

Endovascular

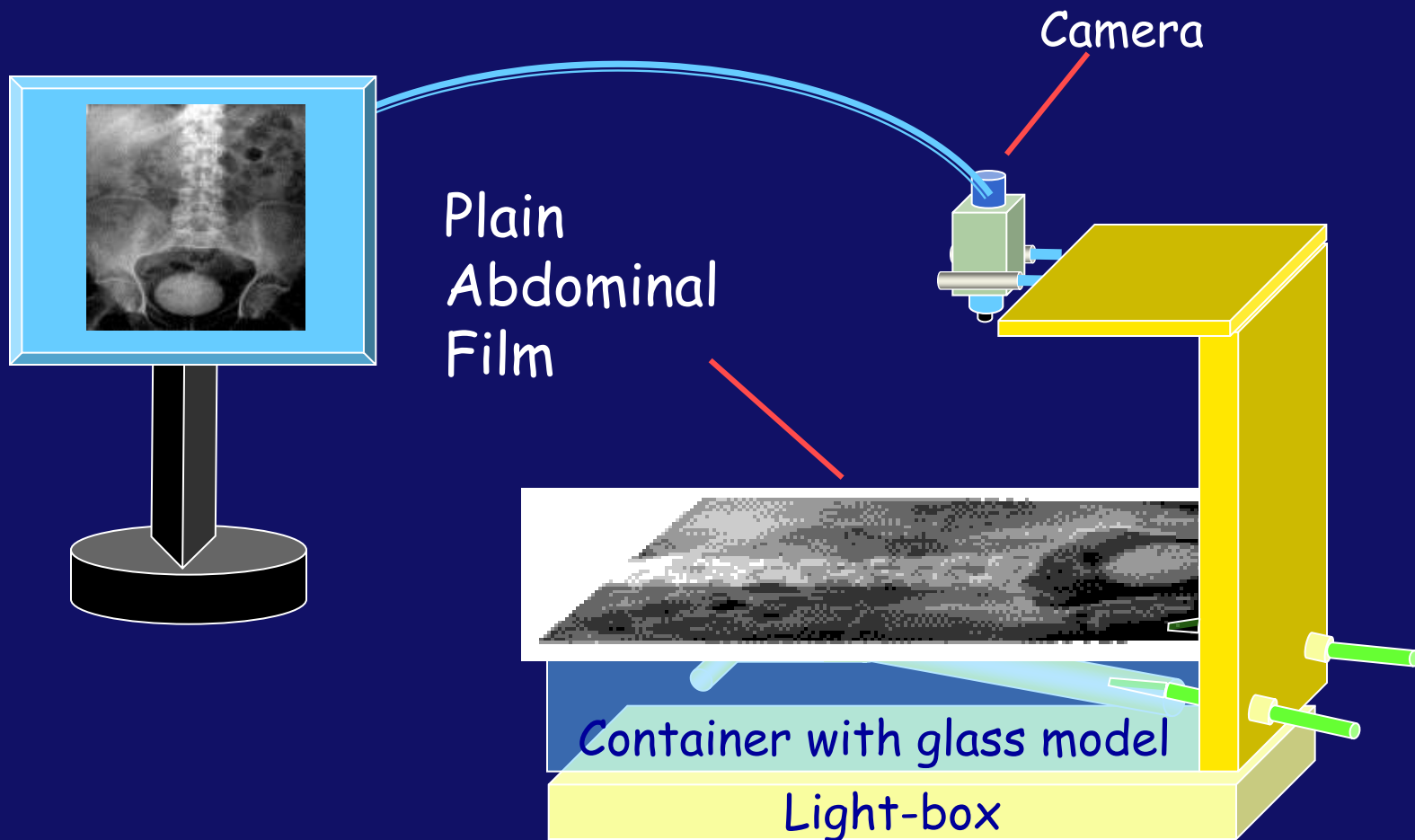
Skills

Not a TRAINING but a TESTING machine. Simple objectives (catheter/guidewires); Contrast, Balloons, Stents not necessary (J. Blankensteijn)



Endovascular Skills Examination

STRESS-machine: schematic drawing





Endovascular Glass Model

RA ostial
Stenosis

Straight
Side

'Easy'
Stenosis



Angulated
Side

'Difficult'
Stenosis



Task Specific Endovascular Skills Examination Methods

name:

specific technical skill

date: / /

observer:

experience last 12 months (incl stentgraft)					
number of procedures assisted (first assistant)	0-10	10-25	25-50	50-250	>250
number of procedures performed	0-10	10-25*	25-50	50-250	>250**

* estimated workload vascular surgeon

** estimated workload interventionalist

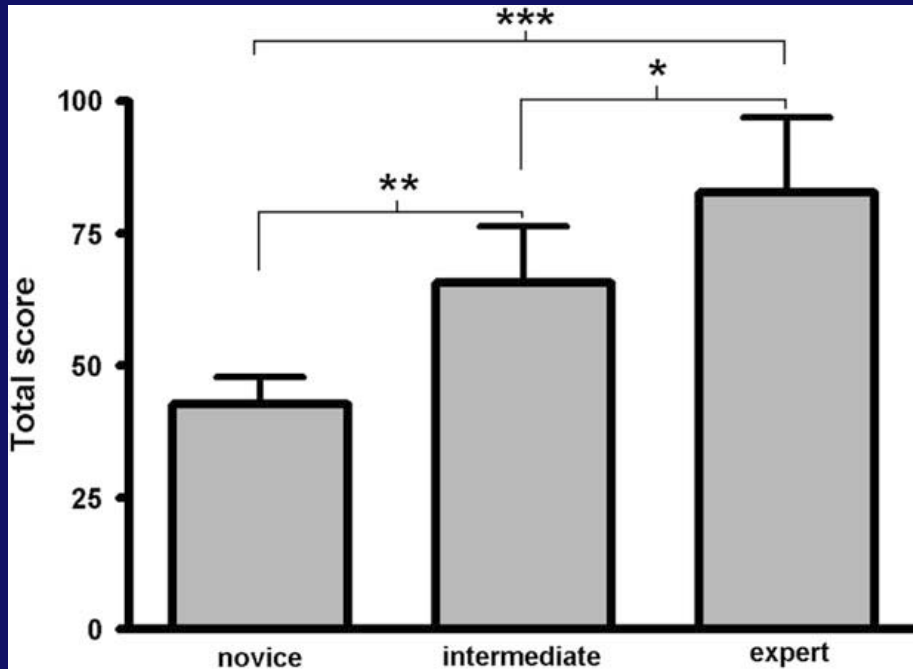
	1	2	3	4	5
Choice of guide wire, catheter and groin side	incorrect guide wire and catheter		correct guide wire and catheter but hesitantly chosen		contemplative and fast choice of correct guidewire and catheter
guide wire handling	force on guide wire and/or advancement in big steps and/or kinking of guide wire or losing of passage		occasionally using force on guide wire, reasonably incrementally advancement, difficulties in using torque of guide wire		no force, flawlessly using torque movements on the guidewire, incrementally advancement (centimeters)
Eye/fluoro/hand movement	moving guide wire or catheter while hardly looking at screen		moving guide wire or catheter occasionally without looking at screen		never losing eye-side of position of guide wire or catheter
reaction to obstruction	fail to recognize or using force on guide wire or catheter		(ask for angiogram), slow but correct passage or passage with minimum of force on guide wire or catheter		expedient, fast passage, with or without use of angiogram, without forcing guide wire or catheter
catheter handling	using force on catheter or let the catheter run without guide wire or losing of access after passage of obstruction		advancement in too big steps, handling catheter too far away from sheath		correct (incrementally) advancement, handling catheter close to sheath for advancement and for steering (or at hub for steering)
access to renal artery	fails within time limit because of incorrect technique		succeeds in several attempts, with or without correct technique but without forcing of guide wire or catheter		succeeds quickly with correct technique

total time left groin/right RA:min.....sec

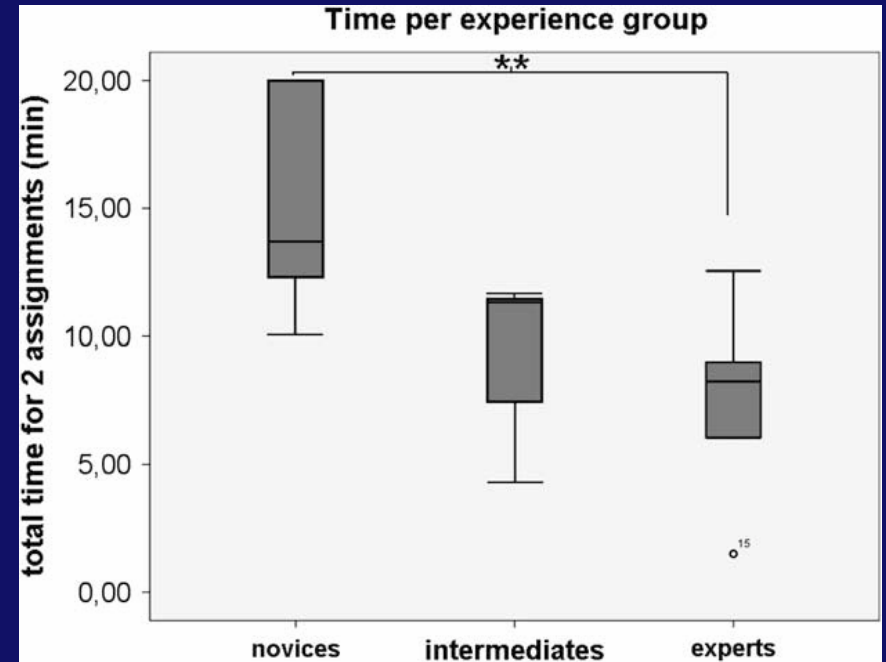
total time right groin/left RA:min.....sec



Pilot Test Endovascular Skills Examination



The mean total score for novice, intermediate and expert candidates.



The total time versus experience



Summary

EBVS-Q since 1996; Skills Exam since 2004:

- Recognition: accepted as the "standard" FEBVS (Fellow European Board Vascular Surgery)
- Objective, validated and includes technical skills evaluation
- But: expensive (organization, time, and materials)
- Technical skill: independent psychomotor skill that requires an assessment of its own
- FEBVS: skills exam is valid model of assessment of technical skill in an examination setting



Major Contributors EBVS-Q

- David Bergqvist
- Jaap Buth
- Marc Cairols
- Peter Harris
- Christos Liapis
- Bernard Nachbur
- Vicas Pandey
- John Wolfe
- And many others!