

ORIGINAL COMMUNICATION

## Drugs driving – standardized field sobriety tests: a survey of police surgeons in Strathclyde

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**SUMMARY.** *Objective:* to determine the opinion of police surgeons within Strathclyde Police to the proposed introduction of Standardized Field Sobriety Tests (SFSTs) in the assessment of suspect drivers. *Method:* 25 police surgeons who attended a full day training programme in respect of 'Drugs and Driving' received a questionnaire relating to the tests. Following analysis of the responses, an identical questionnaire was posted to all 101 registered police surgeons in Strathclyde, resulting in a 45% response and results compared. *Results:* of the conference attendees, 54% of doctors were satisfied with the tests, while 46% expressed reservations. Each test was considered separately, however the Walk and Turn Test and the One Leg Stand Test caused the highest levels of concern from at least 50% of the doctors. *Postal responses:* 52% were satisfied with the tests, however 48% expressed concerns. Again, the Walk and Turn Test and the One Leg Stand Test were by far the tests causing most concern. *Conclusions:* a significant percentage of police surgeons in Strathclyde have expressed concerns regarding the SFSTs. Irrespective of length of experience and postgraduate qualification, the tests most contentious are the Walk and Turn Test and the One Leg Stand Test. © APS/Harcourt Publishers Ltd 2001

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### INTRODUCTION

The incidence of illicit drug use in the general population has escalated in recent years in epidemic proportions, and the incidence of motorists driving under the influence of drugs has also increased significantly.<sup>1</sup> At present there is no specific coordinated training for police surgeons to enable them to accurately and reliably detect evidence of impairment in a suspect driver. It is accepted, when examining suspect drivers in respect of Section 4 RTA 1988, that it is not a pre-requisite for the police surgeon to prove evidence of impairment; only to demonstrate the presence of a condition which might be related to the effects of a drug.<sup>2,3</sup> Notwithstanding the above, there is no doubt the procedures adopted by police surgeons in these situations vary enormously, due primarily to the absence of a standardized approach which is based on a recognized and

validated examination, and which has followed the completion of appropriate specialist training. Some police forces, such as Strathclyde, have for many years recommended the use of a specific pro-forma – Form F97, for police surgeons to complete which would assist in the detection of clinical signs which may be related to the effects of a drug. Despite the use of such guidelines, the doctor's assessment remains, to a varying degree, a subjective assessment with significant scope for variability and inconsistency. In conjunction with some other forces in the United Kingdom, Strathclyde Police conducted a trial, during which period, Standardized Field Sobriety Tests (SFSTs) were applied to suspect drivers at the roadside. These tests, which were pioneered in the USA some 20 years ago, have recently influenced training in various countries and are stated to have been validated both in laboratory and roadside conditions.<sup>4</sup> Following this trial period, these tests were introduced to invited police surgeons from Strathclyde Police who attended a full day training seminar devoted exclusively to the topic 'Drugs Driving'.

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## STANDARDIZED FIELD SOBRIETY TESTS

These tests are designed to assess the psychomotor status and cognitive functions of an individual, however they also include a 'divided attention' component which is designed to assess the ability to pay attention, to follow simple instructions, and to divide attention between multiple tasks. This multiple task or 'divided attention' assessment is purported to be relevant in respect of the multiple tasks required to satisfactorily drive a motor vehicle. It is further suggested that the individual who is unable to divide his attention will frequently forget part of the instructions. Four specific tests have been recommended for adoption – the Walk and Turn Test, the One Leg Stand Test, the Finger to Nose Test, and the Romberg Test. These tests are rigidly conducted without the slightest deviation in instruction and are assessed in an equally rigid manner with no scope for leeway at any point in the procedure.

### The Walk and Turn Test

The Walk and Turn test is a test which divides the subject's attention between balancing and information processing. It comprises two elements: Instruction and Walking. The test requires the subject to assume a starting position while receiving instructions for the test. The procedure for conducting the walk and turn test is as follows:

1. Have the subject stand erect with his/her feet together and hands hanging down by their sides. Have the subject place his/her left foot on the line, then place the right foot on the line directly in front of the left foot, with the heel of the right foot touching the toes of the left foot (demonstrate). Tell the subject to remain standing in this position while listening to the instructions and not to start the test until you tell them to do so. If the subject loses balance three times in this position, discontinue the test and go on to the next test
2. Tell the subject when you tell them to start they are to take nine steps in a straight line touching heel to toe with his/her hands down at their sides, turn about pivoting on their lead foot and taking half steps in a half circle to their left (demonstrate), then take another nine steps in the same manner. Tell them as they take each step they are to watch their feet, count each step out loud, and not stop until they have completed the test. Demonstrate this for them as you explain
3. Ask the subject if they understand the instructions
4. Have them perform the test.

Note if the subject:

- a. Breaks away from the start up stance
- b. Starts walking too soon
- c. Fails to touch heel to toe (note which step)
- d. Steps off the line (note direction and which step)
- e. Stops walking too soon (note which step)
- f. Raises the arms out to the sides
- g. Takes more or less than nine steps (note how many steps)
- h. Turns improperly (i.e. turns the wrong way)
- i. Fails to follow instructions.

From these 'indicators' as listed above, NHTSA (National Highway Traffic Safety Administration) guidelines are that if two out of the above indicators are present, this would tend to indicate impairment.

### One Leg Stand Test

This test divides the subject's attention and comprises two elements: Instruction, and Balancing and Counting.

During the instruction stage the subject stands straight with his/her feet together and arms by their sides. During the balancing and counting stage the subject stands on one leg with the other held straight out, off the ground for a period of 30 s.

The procedure for the One Leg Stand Test is as follows:

1. Have the subject stand erect with arms at sides
2. Instruct them not to start until advised, however listen carefully to the instructions
3. Check the subject understands
4. Tell the subject when you say start, he/she must raise the right foot 6 to 8 inches off the ground keeping the leg straight and the toes pointing forwards, with the foot parallel to the ground. **Demonstrate**
5. Tell the subject he/she must keep the arms at the side and must keep looking at the elevated foot, while counting out loud in the following manner: '1001, 1002, 1003' and to count for 30 s. After 30 s tell the subject to stop
6. Ask the subject if they understand the instructions
7. Tell the subject to start
8. Repeat for the other leg.

Ensure the test lasts for 30 s no matter the speed of the subject's counting. Note if the subject:

- a. Sways while balancing
- b. Raises the arms to maintain balance
- c. Hops
- d. Places foot on the ground.

There are four indicators, and NHTSA guidelines are that two out of four indicate impairment.

#### Finger to Nose Test

This test assesses coordination and depth perception. It comprises two elements: Instruction and Command. During the instruction phase the subject is told to stand upright with his/her feet together. The subject is told to extend both closed fists, palm side forward, in front of them. During the command phase the subject is told to touch the tip of the nose with the tip of the index finger.

The procedure is as follows:

1. Tell the subject to stand with feet together and arms at the sides
2. Tell the subject to extend both closed fists, palms up out in front, extend index finger of each hand, then hold index fingers in that position and place the hands palm side forward at the sides
3. Tell the suspect to maintain that position while you give instructions and not to start until told to do so – emphasize this clearly
4. Tell the subject when you say 'start' he/she must tilt the head back slightly, close the eyes and lift the arms slightly in front of them with index fingers extended. **Demonstrate**
5. Tell the subject you will say either left or right at which time he/she should move the hand indicated directly in front with the tip of the finger touching the tip of the nose. The hand should then be lowered and the subject wait until the next hand is indicated. **Demonstrate**
6. Check that the subject understands
7. Tell subject to tilt head back, close eyes, and bring hands slightly in front as previously shown
8. Call out the following hands in the following order: **Left, Right, Left, Right, Right, Left.**

Clues: where tip of index touches, which hand used, body sway.

#### The Romberg Test

This test is an indicator of the subject's internal clock and body sway. It comprises two stages: Instruction and Performance. During the instruction stage, the subject must stand upright with the hands hanging by the sides. During the performance stage, the subject must stand in the start position with the head tilted slightly back and the eyes closed.

The procedure is as follows:

1. Tell the subject to stand straight with feet together and hands by their sides

2. Tell the subject to maintain that position while you give instructions. Emphasize he/she should not begin until you say 'start'
3. Tell the subject that, when you tell them to, they must tilt their head back slightly and close their eyes. **Demonstrate.** Tell the subject to mentally estimate 30 s. Tell them at the end of 30 s they are to open their eyes and say 'time up'. **Do not tell them to count**
4. Ask if the subject understands the instructions
5. Instruct the subject to begin the test. Time the subject's time estimation with your watch.

An estimation of between 20 and 40 s is regarded as acceptable. The test is terminated if 90 s elapse or if the subject can not safely complete the test.

Clues:

1. Subject unable to stand still or steady with feet together
2. The time lapse is inappropriate or unacceptable
3. The subject fails to follow instructions.

#### METHODS AND MATERIALS

Thirty-one police surgeons attended a full day training course devoted to the problem of Drugs Driving, in Strathclyde Police Training Centre. Twenty-five doctors remained until the plenary session at the conclusion of the course and were issued with questionnaires regarding the SFSTs, which all attendees completed and returned. The responses were collated using a micro-processor running Microsoft Excel software. The doctors were initially asked basic questions to assess their level of satisfaction with the SFSTs. These questions were simply – Are you happy to accept the test as recommended in full? YES/NO, although they were initially asked to consider:

Do you consider the tests more difficult than they need be?	YES/NO
Do you consider the tests more harshly assessed than they need be?	YES/NO

Following this, the doctors were asked to consider each test individually and to respond in a similar manner as to whether or not they were happy to accept each test as proposed. Finally the doctors were asked to indicate whether or not they approved of:

1. A 2nd examination some hours after the first, for purposes of comparison of findings
2. An aggregate score system, which might quantify a degree of clinical signs.

Following analysis of this survey, an identical questionnaire, accompanied by fully documented details of the SFSTs was circulated to all 101 practicing police

surgeons in Strathclyde, resulting in a response rate of 45%. Both samples were analysed and the results compared.

### RESULTS – CONFERENCE ATTENDEES (25) (SEE FIG. 1)

In general terms, 54% declared themselves content to accept the tests, with 46% having reservations. A 2nd examination found favour with 96% with no support in 4%. An aggregate score system for a suspect driver was thought to be of value in 84%, with 16% regarding this concept as worthless.

These global responses were analysed further by virtue of assessing responses from doctors holding recognized qualifications in forensic medicine such as DMJ (Diploma of Medical Jurisprudence) or DFM (Diploma of Forensic Medicine) and comparing them to those of doctors without such qualifications and are also shown in Figure 1.

A 2nd examination for those without forensic qualifications found favour in 100% with no dissenters. An aggregate score system was thought to be of value in 86% with 14% regarding it worthless. Doctors with post-graduate forensic qualifications declared themselves generally satisfied with the SFSTs in 32%, with 68% having reservations. A 2nd examination found favour in 91% with 9% dissenters. An aggregate score system was thought to be of value in 73% with 27% regarding it worthless.

The responses were further analysed by assessing the responses from doctors split into groups depending on length of experience as practising police surgeons: less than 5 years, 6 to 10 years, 11 to 20 years, and 20 years plus. The responses are shown in Table 1.

### RESULTS – POSTAL QUESTIONNAIRE (45) (SEE FIG. 2)

In general terms, 52% of respondees declared themselves entirely happy to accept the tests and 48% felt the tests either too difficult or too harshly assessed. As

before, the doctors were asked to consider each test individually and also their opinions sought on the value or otherwise of a 2nd examination and of an aggregate score to quantify the degree of clinical findings. The doctors were, as before, asked if they held any post-graduate qualifications in forensic medicine and finally to indicate the length of their experience as practising police surgeons. The responses are shown in Figure 2.

### ANALYSIS OF RESULTS

Several findings were clearly noted:

1. A significant percentage of Police Surgeons in Strathclyde have concerns regarding the Standardized Field Sobriety Tests
2. The results of the questionnaire of doctors attending the conference on drugs driving are, by and large, 'mirrored' by doctors responding to a postal questionnaire
3. The tests which cause most concern are the Walk and Turn Test, and the One Leg Stand.
4. Conference attendees with a postgraduate qualification were, in general, significantly more concerned about the tests than those doctors without postgraduate qualifications
5. Conference attendees with less than 5 years experience were most satisfied with the tests, while attendees with 20 years plus experience were least satisfied with the tests
6. A high percentage of doctors approved of both a 2nd examination, for the purpose of comparison, and also an aggregate score system for quantification of clinical signs
7. Conference attendees with 20 years plus experience were 100% in favour of both a 2nd examination and also an aggregate score system
8. Postal respondees shared at least the same level of concern with the tests as the conference attendees, indeed more than 50% of these doctors expressed reservations in every single test, with 65% of doctors concerned regarding Walk and Turn and One Leg Stand Tests

Table 1 Responses based on length of experience as practising police surgeon

	0–5 yrs (3) Approve/Dissent	6–10 yrs (7) App./Diss.	11–20 yrs (10) App./Diss.	20+ yrs (5) App./Diss.
Tests in general	66%/34%	43%/57%	50%/50%	60%/40%
Walk and Turn	100%/0%	43%/57%	50%/50%	40%/60%
One Leg Stand	66%/34%	43%/57%	50%/50%	40%/60%
Finger-Nose	100%/0%	72%/28%	70%/30%	60%/40%
Romberg	100%/0%	86%/14%	60%/40%	60%/40%
2nd Exam	100%/0%	86%/14%	90%/10%	100%/0%
Aggregate	66%/34%	57%/43%	80%/20%	100%/0%

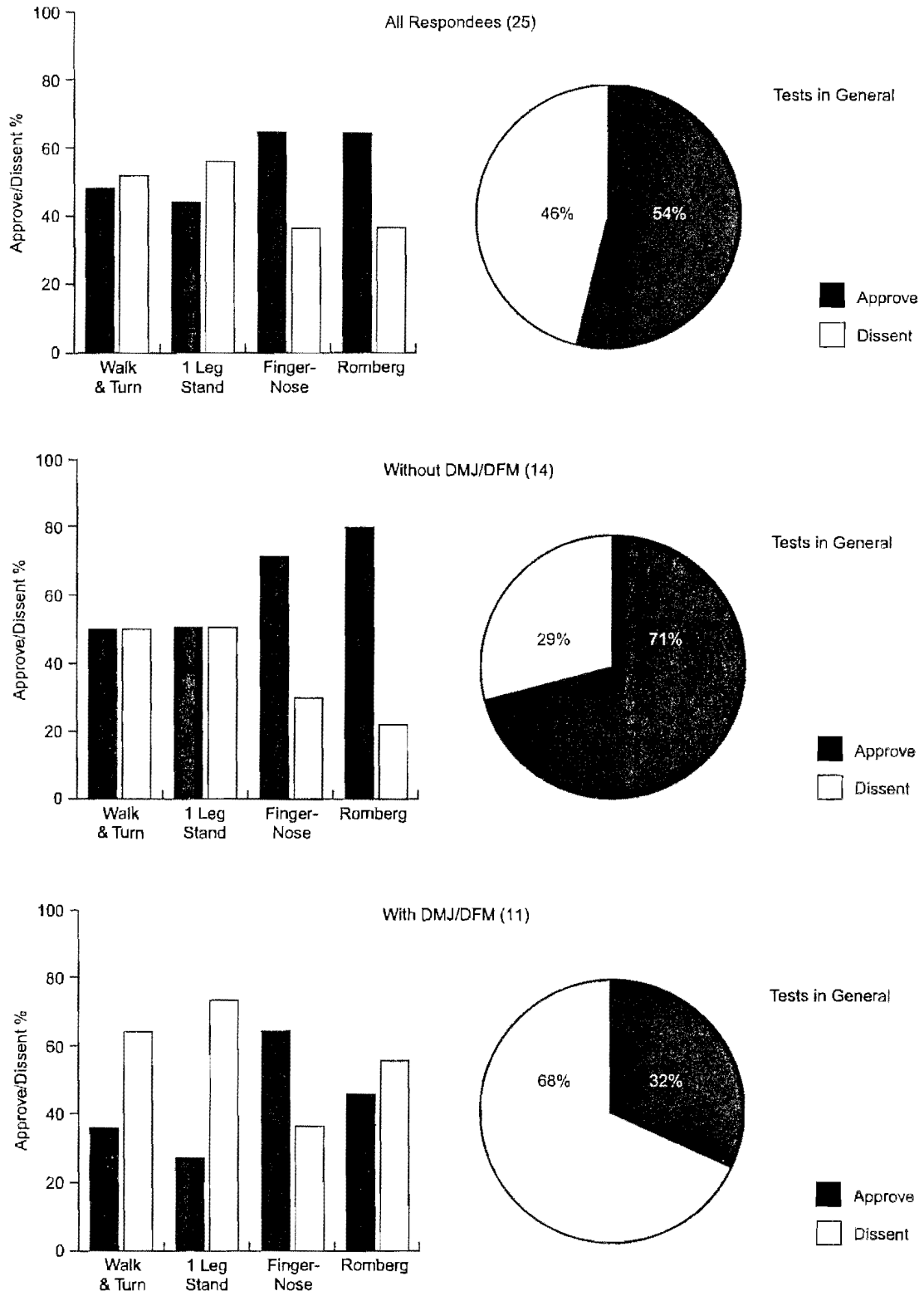


Fig. 1 Conference responses

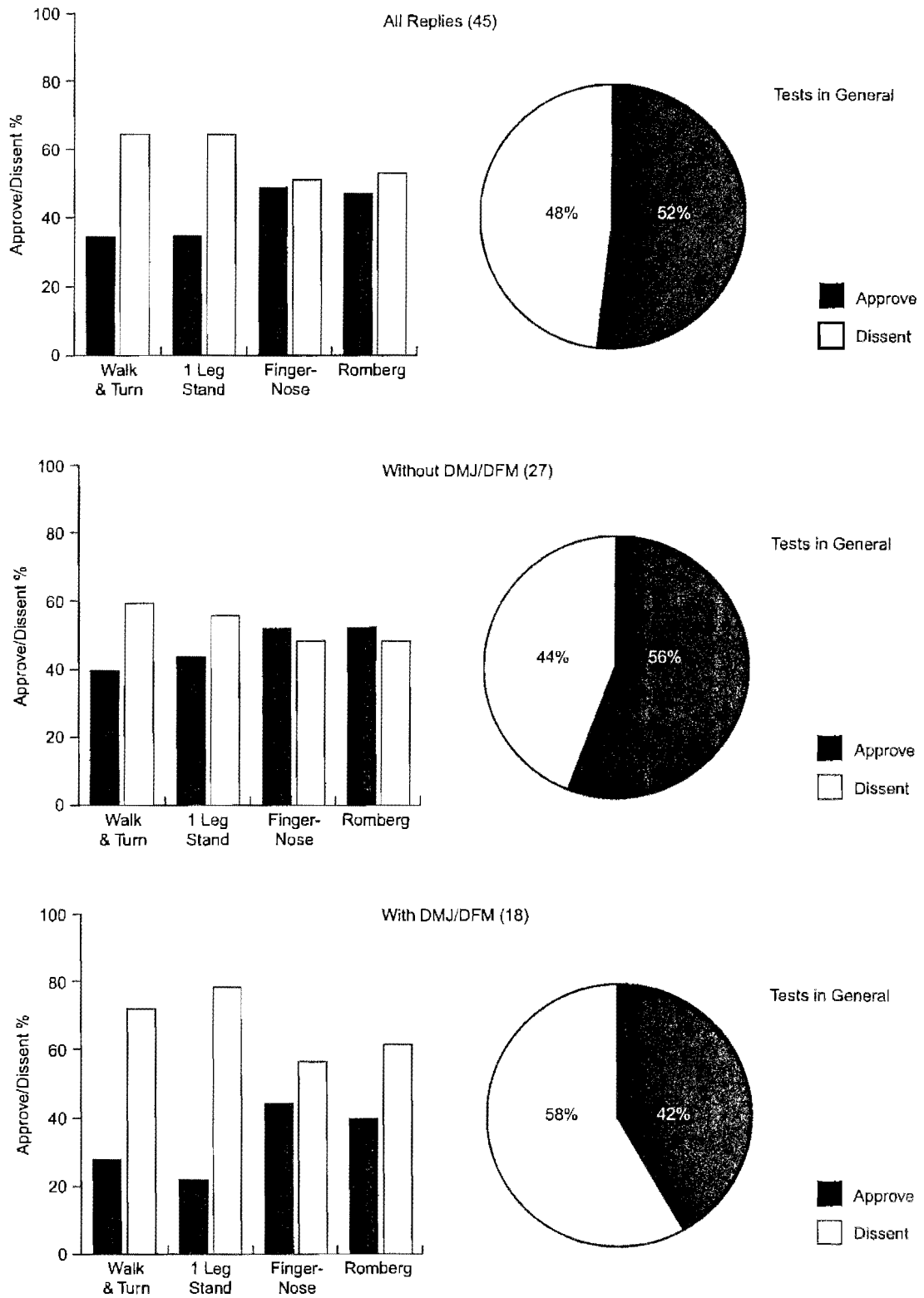


Fig. 2 Postal responses

9. Postal respondents with a post graduate qualification again expressed greater concerns with the tests than the doctors without such a qualification.

## DISCUSSION

There can be no doubt the ultimate aim is for the introduction of a standardized procedure which police surgeons can adopt such that suspect drivers are assessed uniformly, professionally and fairly. The general objectives of the SFSTs should be welcomed in principle, however the tests must be clearly seen to achieve their purpose – to test for sobriety. Several questions have to be asked regarding the SFSTs:

1. Do the tests achieve their stated objective, i.e. test for sobriety?
2. Are the tests specific or diagnostic, i.e. does failure to pass these tests indicate **solely** lack of sobriety?
3. What do the tests actually assess?
4. Have the tests been truly validated?
5. Are the tests likely to withstand challenge in court?
6. Is it appropriate these tests which were originally designed for non-medical professionals (American police officers) be recommended for widespread adoption by police surgeons and for the results of these tests to form the basis for our opinion?

Early studies which suggested these tests accurately indicate impairment due to drugs, in a high percentage of cases<sup>5</sup> remain to be confirmed. Indeed, controlled trials, when toxicology assays were taken, before and during these tests conducted by Drug Recognition Experts, have clearly shown when cases involving alcohol are excluded, the accuracy level has fallen to 32%–44%.<sup>2</sup> It must also be noted in these previously claimed, highly accurate tests, the suspects were all questioned in detail regarding their use of drugs, both prescribed and illicit, prior to an opinion being given.

The aim of the medical examination of suspect drivers under Section 4 RTA 1988 is to determine whether there is a medical explanation to account for any detected impairment.<sup>6</sup> The differential diagnoses will be well known to forensic practitioners and found in recognized textbooks. It may well be the case that poor performance or lack of success in these tests might be due to some undiagnosed condition. Consider the problems encountered in these 'divided attention' tests by persons who may have naturally occurring difficulty with the otherwise seemingly normal functions of remembering a rigid sequence of several instructions and commands, while assuming a fixed and relatively unnatural position, all the while in a relatively stressful environment.

**Dyslexia** is a common condition affecting 4% of the population severely, with a further 6% showing some dyslexic characteristics. Dyslexia is a specific learning difficulty related to disorder of information processing and apart from causing difficulty with the acquisition of reading, writing and spelling, may encompass some or all of the following: difficulty with organizational skills; making errors with numbers; making mistakes with instructions; problems with explaining ideas and concepts; difficulty with orientation; confusing left and right; confusing dates and forgetting appointments.<sup>7</sup>

**Dyspraxia** is a not uncommon condition affecting up to 5% of the population, which can be defined as motor difficulties caused by perceptual problems, especially visual motor and kinesthetic motor difficulties.<sup>8</sup> Dyspraxia has also been defined as an immaturity of the brain resulting in messages being improperly transmitted to the body. It affects at least 2% of the population in varying degrees and although a genuine disability, those affected do not look disabled. Some of the common problems caused by dyspraxia are – clumsiness, poor posture, awkward gait, poor short-term memory, poor body awareness, poor sense of direction, inability to hop or skip.<sup>9</sup>

It has been suggested poor performance on these tests (SFSTs) might simply be the result of extreme fatigue, coupled with a degree of sleep deprivation – which in some circles has been met with considerable scepticism. Recently published research has revealed in normal subjects that, after 17 to 19 h of staying awake, reaction times were up to 50% slower than they were after drinking a measured quantity of alcohol. Thirty-nine volunteers aged in their 30s and 40s were assessed in respect of reaction time, both physical and mental, coordination and attention span using a variety of manual and cognitive tasks. The researchers used alcohol as a baseline since standards have already been set in several countries for loss of performance or impairment after consuming alcohol. The tests were duplicated under controlled conditions on separate days when the subjects were deprived of sleep over a 28 h period, and also on another day over a 6 h period when the subjects were given 4 units of their favourite alcohol. The researchers found that the performance of subjects kept awake for 17 to 19 h, in some tasks, was the same or worse than that recorded after 50 mg/100 mls of alcohol. Reaction times were recorded up to 50% slower and accuracy was significantly reduced. Indeed it was noted, the longer the subjects were kept awake the worse their performance became, reaching levels of impairment normally expected from alcohol above the legal limit of 80 mg/100 mls.<sup>10</sup>

If we consider what exactly SFSTs actually assess, there can be no doubt the answer must be not only sobriety, but also a variety of physical, neurological,

intellectual and cognitive functions which interlink information processing, organizational skills, short term memory, spatial awareness, balance and coordination, however not the least, the ability to perform these rigid and complicated tests under stress.

The validity of these tests has been questioned,<sup>11,12</sup> and consequently their ability to withstand challenge in court is in doubt. What is certainly not in doubt is that in Strathclyde Police Force there is a very significant percentage of doctors who have clearly indicated their concern in respect of these tests.

## CONCLUSION

Standardized testing or assessment, of suspect 'drugs drivers' remains the goal, however, in the interests of justice, these tests must be clearly seen to be as fair and scientifically accurate as is realistically possible. At present, a significant percentage of police surgeons in Strathclyde have reservations with the tests as currently proposed. Further discussion with specialists involved in this field would be of benefit.

## APPENDIX

### POLICE SURGEON EXAMINATION – SUSPECT DRUGS DRIVERS

The purpose of this questionnaire is solely to gauge the consensus of opinion within the audience in respect of the above.

**There are no right or wrong answers, however each and every response is of value.**

1. Do you consider the tests as outlined and recommended to us for adoption as standard procedures are, or may be regarded as:
 

(i) more difficult than they need to be?	YES/NO
(ii) more harshly or critically assessed than they ought to be?	YES/NO
2. **Walk and Turn Test:** considering the test as outlined and the recommendation this test be adopted as a matter of routine, are you:
 

(i) happy to accept in full?	YES/NO
(ii) prepared to accept with reservations?	YES/NO
(iii) unhappy to accept even with reservations?	YES/NO
3. **One Leg Stand Test:** considering the test as outlined and the recommendation this test be adopted as a matter of routine, are you:
 

(i) happy to accept in full?	YES/NO
(ii) prepared to accept with reservations?	YES/NO
(iii) unhappy to accept even with reservations?	YES/NO
4. **Finger Nose Test:** considering the test as outlined and the recommendation this test be adopted as a matter of routine, are you:
 

(i) happy to accept in full?	YES/NO
(ii) prepared to accept with reservations?	YES/NO
(iii) unhappy to accept even with reservations?	YES/NO
5. **Romberg Test:** considering the test as outlined and the recommendation this test be adopted as a matter of routine, are you:
 

(i) happy to accept in full?	YES/NO
(ii) prepared to accept with reservations?	YES/NO
(iii) unhappy to accept even with reservations?	YES/NO
6. **Section 4 RTA 2nd Examinations:** In previous years when a suspect driver was found to be impaired, Form F97 was completed with appropriate findings listed. The suspect driver was detained in custody for some 8 to 12 hours, then subsequently re-examined, almost always with the absence of previously noted signs of impairment.

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Do you consider a second examination of suspect initially found impaired:

- |                                   |        |
|-----------------------------------|--------|
| (i) essential?                    | YES/NO |
| (ii) worthwhile?                  | YES/NO |
| (iii) worthless?                  | YES/NO |
| (iv) absolutely contra-indicated? | YES/NO |

7. **Overall Assessment of impairment/lack of impairment:** Do you feel there would be any merit in developing and adopting a procedure whereby clinical signs which may be consistent with impairment due to drugs, are individually scored and aggregated, resulting in a grand total score for each suspect?

- Low score = normal/no impairment
- Intermediate score = borderline/possible impairment
- High score = definite impairment

Would you consider a clinical sign aggregate score system of value? YES/NO

How many years experience as a police surgeon do you have?

- 0-5 years
- 6-10 years
- 11-20 years
- 20+ years

Do you have a post-grad qualification such as - DMJ? YES/NO  
DFM? YES/NO

**Thank you for completing this questionnaire.**