Journal of Forensic Sciences And Criminal Investigation
ISSN: 2476-1311

Juniper Publishers key to the Researchers

Review Article
Volume-5 Issue 3 - September 2017
DOI: 10.19080/JFSCI.2017.05.555666

J Forensic Sci & Criminal Inves

Forensic Podiatry - An Overview

J Gordon Burrow*[1], Haydn D Kelly[2] and Barry E Francis[3]

[1]*Chartered Scientist; Chartered Safety and Health Practitioner, UK*

[2]*Directorate of Podiatric Surgery, College of Podiatry, London*

[3]*Consultant Podiatric Surgeon. Forensic Podiatrist. Fyfield Clinic Ltd*

Submission: September 19, 2017; **Published:** September 27, 2017

***Corresponding author:** J Gordon Burrow, ProfD, Chair Forensic Podiatry Special Advisory Group, College of Podiatry, London. Email: gordon.burrow@btinternet.com

Abstract

Forensic Podiatry within the United Kingdom is a specialist area of Podiatry and is practiced by Podiatrists and as such, is regulated by the Health and Care Professions Council (HCPC). In the UK, the College of Podiatry has a Special Advisory Group (FPSAG) which has been in existence since 2008, and which reports directly to the Directorate of Podiatric Medicine within the College of Podiatry. In the United States of America, all podiatry medical schools are accredited by the Council on Podiatric Medical Education. The American Association of Colleges of Podiatric Medicine governs many aspects of Podiatric Medical Education. Each school is also accredited by their respective state and/or regional accrediting association. In Australia, from 1 July 2010 Podiatrists and Podiatric Surgeons must be registered with the Podiatry Board of Australia and meet the Board's registration standards to practise in Australia.

The role and scope of Forensic Podiatry has been clarified and agreed by the International Association of Identification. The Standards for Forensic Podiatry in the UK are currently being developed under the auspices of the Forensic Podiatry Special Advisory Group at the College of Podiatry and associated with the Forensic Science Regulator. Forensic Podiatry utilises the proficiencies and elements of the Podiatry profession in applying specialised clinical, theoretical and practical information and experience in a systematic, knowledge based way in the understanding of the functioning foot along with the wider significance of the musculoskeletal system. This involves the development of scientific evidence through methodical and technical investigations to assist the court in helping to resolve matters in the civil or criminal justice system. This article outlines the main areas of Forensic Podiatry and the requirements needed to undertake Expert Witness work as a Forensic Podiatrist.

Introduction

Forensic Podiatry within the United Kingdom is a specialist area of Podiatry and is practiced by Podiatrists and as such, is regulated by the Health and Care Professions Council (HCPC) thereby ensuring that those working in this area of practice are bound by the HCPC Standards of Conduct, Performance and Ethics; the Standards of Proficiency for Podiatrists and the Standards of Continuing Professional Development of the Regulatory body for the protected title in the UK of Podiatrist. This gives assurance to the Courts through both Civil and Criminal Justice Systems, that Forensic Podiatrists are bound by statutory regulation and standards. In the UK, the College of Podiatry has a Special Advisory Group (FPSAG) which has been in existence since 2008, and which reports directly to the Directorate of Podiatric Medicine within the College of Podiatry.

However, in other countries the regulation of Podiatrists may not be the case. In the United States of America, all podiatry medical schools are accredited by the Council on Podiatric Medical Education. The American Association of Colleges of Podiatric Medicine governs many aspects of Podiatric Medical Education. Each school is also accredited by their respective state and/or regional accrediting association. The USA has a body representing Forensic Podiatrists namely, the American Society of Forensic Podiatrists, chartered in 2003and which promotes the use of Podiatry in forensic matters utilizing the analysis and evaluation of evidence related to the human foot and the podiatry profession.

In Australia, from 1 July 2010 Podiatrists and Podiatric Surgeons must be registered with the Podiatry Board of Australia and meet the Board's registration standards to practise in Australia. In 2016, the Directorate of Podiatric Surgery at College of Podiatry in the UK and the Australasian College of Podiatric Surgeons agreed a Memorandum of Understanding.

The functions of the Podiatry Board of Australia include:

a) Registering podiatrists and students

b) Developing standards, codes and guidelines for the podiatry profession

c) Handling notifications, complaints, investigations and disciplinary hearings

d) Assessing overseas trained practitioners who wish to practise in Australia

e) Approving accreditation standards and accredited courses of study.

The role and scope of Forensic Podiatry has been clarified and agreed by the International Association of Identification [1]. The Standards for Forensic Podiatry in the UK are currently being developed under the auspices of the Forensic Podiatry Special Advisory Group at the College of Podiatry and associated with the Forensic Science Regulator. The Forensic Science Regulator is remitted to ensure the provision of forensic science services across the criminal justice system is subject to an appropriate regime of scientific quality standards, although does not have the same regulatory powers as other regulatory bodies such as the General Medical Council, The HCPC or the General Dental Council.

Forensic Podiatry utilises the proficiencies and elements of the Podiatry profession in applying specialised clinical, theoretical and practical information and experience in a systematic, knowledge based way in the understanding of the functioning foot along with the wider significance of the musculoskeletal system. This involves the development of scientific evidence through methodical and technical investigations to assist the court in helping to resolve matters in the civil or criminal justice system. The definition of forensic podiatry [2] is: "the application of sound and researched podiatry knowledge and experience in forensic investigations, to show the association (or disassociation) of an individual with a scene of crime, or to answer any other legal question concerned with the foot or footwear that requires knowledge of the functioning foot" (underlining and italics authors).This makes it fundamentally well-defined that only those who are Podiatrists (a protected title in the UK and elsewhere) should legitimately state they are working in the field of Forensic Podiatry. Where others claim to do so and who are not Podiatrists, is misleading including to those who may instruct them, and ultimately, they are misusing a protected title. The above definition of Forensic Podiatry is universally accepted by amongst others, the College of Podiatry, the International Association of Identification (IAI) [3] and the Chartered Society of Forensic Sciences.

In stating that Forensic Podiatry requires a knowledge of the functioning foot does not confine forensic work to just the foot, but may include other areas of the body; the diagnosis and management of medical conditions and diseases; the mus culoskeletal system as already mentioned which can affect the functioning foot, or vice-versa. For example, in gait analysis, the Forensic Podiatrist will take a holistic view of the whole body and how movement, position, structure and function of other areas of the body affect the functioning foot, and again vice -versa. Other professionals can and do work alongside Podiatrists in research areas, or they may decide to input into the areas of specialist practice e.g. an anthropologist may work in bare footprint analysis or an image analyst may work in closed circuit television (CCTV) analysis, but they cannot and should not indicate nor state in any way that they are working in Forensic Podiatry. An image analyst may well analyse the same CCTV footage as a Forensic Podiatrist, but for different purposes and their interpretation and analysis will be different to that of the Forensic Podiatrist.

Forensic Podiatry has FOUR main areas of practice:

a) Assistance in the identification of someone from podiatric patient records cards, and this would usually be concerning parts of the deceased being compared with the information stored in podiatry treatment records.

b) Bare footprint analysis and identification - the identification of a person from the two-dimensional (2D) latent impression left at a crime scene and compared with those of a known person (suspect). Footprint sequencing - the collection of numerous footprints from one person during their normal gait sequence. Occasionally casts may be taken of footprints and result in three-dimensional (3D) replicas of the foot and its impressions.

c) Forensic Gait Analysis - is defined as 'the identification of a person by their gait or by features of their gait, usually from closed circuit television (CCTV) footage and comparison to footage of a known individual.' This involves the analysis and comparison, for similarity and dissimilarity, of gait patterns as displayed on public or private CCTV footage. These can be compared to each other and to surveillance footage, or custody suite footage of known person/s. The CCTV footage is analysed and the person/s gait or features of their gait noted and which can then be compared to a known suspect/s, or other individuals, depending upon the task and matter in hand.

d) Footwear analysis and identification - here footwear along with the impression created within the footwear, or erosion on the outsole of footwear and other wear marks are considered.

Podiatrists embarking on the specialism of Forensic Podiatry should ensure they have the necessary indemnity insurance to undertake such work as an Expert Witness and know the Civil or Criminal Procedure Rules [4,5] insofar as it relates to the expert witnesses, in whichever country they are practising. Following the decision of the UK Supreme Court in Jones v Kaney 2011[UKSC13], Expert Witnesses no longer have immunity from suit and therefore must have indemnity insurance cover in place, in case they are found negligent in their duty to the party instructing them [6]. Normally, such insurance is not supplied by their own professional body and must be obtained separately. Insurance cover can be purchased through several organisations, including The Expert Witness Institute ; the Academy of Experts

How to cite this article: J Gordon B, Haydn D K, Barry E F. Forensic Podiatry - An Overview. J Forensic Sci & Criminal Inves. 2017; 5(3): 555666. DOI: 10.19080/JFSCI.2017.05.555666.

, Chartered Forensic Science Society ; The UK Register of Expert Witnesses .

In the USA, under the amended rule 702 and 703 of the Federal Rules of Evidence, an expert witness must be qualified on the subject upon which they are to give testimony. In determining the qualifications of the expert, the Federal Rules of Evidence requires the expert to have specialized education, training, or practical experience in the subject matter relating to the case [7]. The expert's testimony must be based on facts in evidence, and should offer opinion about the causation or correlation to the evidence in drawing a conclusion.

In Australia, similar rules govern the Expert Witness under the Federal Court Rules 2011 and the report from the expert must contain an acknowledgement at the beginning of the report that the expert has read, understood and complied with the Practice Note (re Expert Witnesses); and contain information of the training, study or experience by which the expert has acquired specialised knowledge.

Before embarking on this area of expert witness work it is essential that the Podiatrist undertakes some preliminary training in what being an Expert Witness involves and the requirements as per the Criminal Procedure Rules and Civil Procedure Rules or the Federal Rule of Evidence, or Federal Court Rules,(or as required by other jurisdictions),which should provide them with the necessary information in what an Expert Witness is; what their duties and roles are; how they should conduct themselves in the various courts and justice systems; and on the writing of reports for use in the legal systems.

If the Expert is going to undertake work in the United Kingdom then they need to be aware of the (subtle) differences in jurisdictions such as that for England and Wales and that for Scotland and Ireland. It is strongly advised that Expert Witness training includes the role of the Expert and Report Writing and these types of courses are usually found through Expert Witness bodies or specialist firms such as Bond Solon who are also linked with Cardiff University Law School with accreditation . How far the individual wishes to take that training is up to them, but the Courts (in the UK and Australia at least) are now looking for Expert Witness training to be a part of the Curriculum Vitae of the instructed expert with some expecting accreditation as an expert. As one would expect these courses are quite demanding of both time and effort to undertake and provide training and skills that needed to properly prepare reports for court and for giving oral evidence in court including cross-examination. To ignore this can be a very regrettable decision indeed!

The one overarching fact or that the Forensic Podiatrist will need is experience. The authors are of the view that whilst recognising that individual situations vary and that it can be difficult to quantify precisely how much and type of experience is desirable in each and every case, a general requirement of a minimum of five years' practise as a Podiatrist since graduating is needed. That experience should be on a full-time basis to include a broad range of clinical practice. Depending on whether the Podiatrist initially wishes to venture into the civil justice arena before embarking onto casework in the criminal justice system, is entirely up to the individual, but it can be a more natural step to expand from providing medico-legal reports (e.g. personal injury and clinical negligence) in the civil justice arena before embarking upon providing expert evidence in the criminal justice system.

In the civil justice system, the Podiatrist is likely to be instructed in cases involving personal injury matters and those of medical negligence, as indicated above. The Podiatrist can be instructed for either side - that is the 'claimant' (prosecution) ('plaintiff' or the 'respondent'(defendant), or as a 'single joint expert' (SJE) where the expert provides a report as a joint instruction from the claimant's and defendant's solicitors. Irrespective of which side is instructing the Podiatrist, the Podiatrist's duty is to the Court and not to those who instructs the expert nor to those responsible for paying their invoice! Thus, the expert's report should be independent, transparent and unbiased.

The expert instructed will be required to put a balanced opinion forward, supported by evidence. The report should clearly outline the facts of the case, the evidence that supports the facts, where there is disagreement of the facts and where there is agreement; they should state an opinion and how they reached that opinion and why, what evidence they (the expert) are using to support whatever conclusions they have reached. Thus, the report relies on evidence from not just the case files produced by the lawyers instructing them but also from various researched sources e.g. peer reviewed journal articles, guidance documents issued by relevant bodies or other material.

The report is written and structured in a way to enable the report to be used in the appropriate court and should be signed with statements of declaration and truth included. There are requirements of what should be in an expert's report. Expert Witness organisations and training courses give guidance on what style is required, the layout of a report and what requirements the report should contain, along with other aspects that need to be considered by the expert such as Codes of Practice, Contingency Fees. Also, Terms and Conditions of business which the expert should have agreed and signed by those instructing the expert, and returned to the expert prior to commencing any work.

In civil cases of a medico-legal nature, it is unusual to have to frequently attend court to give oral evidence as the cases are often settled by the parties beforehand. In criminal cases, it is likely the Podiatrist will have to attend court to give oral evidence more regularly, when compared to that of civil cases. Therefore, when undertaking this type of work be prepared to attend court which can sometimes be at short notice; or for the Court venue where the case is being tried to be changed; or for the case to go on longer than anticipated; or to be changed to a

How to cite this article: J Gordon B, Haydn D K, Barry E F. Forensic Podiatry - An Overview. J Forensic Sci & Criminal Inves. 2017; 5(3): 555666. DOI: 10.19080/JFSCI.2017.05.555666.

different day or time. There may also be quite a lot of waiting around at court whilst the legal team debate issues. When the Podiatrist is considering undertaking expert witness work, then they need to factor in these potential uncertainties in to their schedules accordingly.

In addition to writing reports, the Podiatrist might also be required to tender for cases, so you will need to have an up to date CV ready for sending to possible clients, along with a fee structure, Terms and Conditions of Business and an invoice system to ensure payment, as previously indicated above. Also, be aware that fees may be subject to scheduling and a tariff by Legal Aid agencies if the expert decides to embark on cases which require legal aid. These fees are quite often much lower than what an individual might expect to charge so it is important to have these agreed in advance and in writing!

When the Podiatrist is contemplating undertaking expert witness work in the Criminal Justice System, then again, the same considerations apply in the need to undertake Expert Witness training before embarking on such work. Have your experience and training well documented which is essential especially that of knowing the roles of the Expert Witness, the rules governing the Expert Witness and the essential component of training in report writing and in also giving oral evidence in court. In deciding to undertake Forensic Podiatry work, the experience needed will be determined by which area the individual decides to specialise in. As mentioned earlier, there are four main areas in forensic podiatry - the three most common of these being footwear, bare footprints and forensic gait analysis. The other area is identification from podiatry record cards.

Forensic Podiatry Records

Podiatrists are required to keep accurate, contemporaneous, up to date and legible notes on consultations, diagnosis and management of conditions and injuries provided of their patients. Their relevant foot and other conditions, associated diagnoses and treatment plans. These records can be either paper based or electronic and may include items such as photographs, video files, letters and other information. Podiatry records should contain details of the patients who have been treated, including personal information, medical and surgical history, medication (both over the counter as well as prescribed medications) vascular and neurological status, foot deformities, foot lesions as well as results of any clinical investigations undertaken and treatments proffered, along with details of outcomes and potential future of treatment. Other authors have suggested these podiatry records may have value in the forensic and mass disaster identification [7-9]. These records may be useful especially whereby only the foot has survived. In disaster or mass disaster situations where human identification is required, the feet are often cased in footwear, which may have protected the foot or feet from trauma, with these parts of the body being one of the last parts perhaps not being destroyed, for example, by a fire. Although originally envisaged as being only useful with a deceased person, with the increasing use (and abuse) of the internet, there may well be a case for a rethink as to how useful this scenario might be in the process of human identification. A comparison of the detail observed and recorded from the unknown foot/feet to that contained within the known podiatry records is made and then a conclusion reached as to the probability of a match or not. As with all comparison methods, the features which match and which do not match, should be detailed and a reasoned explanation given as to how the Podiatrist reached their conclusions.

Forensic Podiatrists may very occasionally be involved in the supply of information that may assist in identification of human remains from comparison of the feet of the deceased with detail listed in the podiatry records of missing persons. With the Podiatry profession expanding in its undertaking of foot surgery, this may be another avenue of identification by the podiatric surgery and treatment records maintained by Podiatric Surgeons and employers.

Forensic Gait Analysis

Figure 1: CCTV footage captured at crime scene, displaying an 'unknown' person with distinctive upper body anterior lean.

Figure 2: Footage of the suspect compared with CCTV footage (Figure 1), which demonstrated dissimilarity between features of gait.

How to cite this article: J Gordon B, Haydn D K, Barry E F. Forensic Podiatry - An Overview. J Forensic Sci & Criminal Inves. 2017; 5(3): 555666. DOI: 10.19080/JFSCI.2017.05.555666.

Forensic Gait Analysis was first created and introduced as admissible evidence in the criminal justice system in 2000 by Podiatrist, Haydn Kelly, at the Old Bailey Central Criminal Court, London, UK [10-12]. Forensic Gait Analysis is the most recent sub-specialty of the discipline of Forensic Podiatry. This involves the observation and evaluation of gait and features of the gait of person/s to assist in the process of identification of an unknown person. The gait patterns and features of gait used in this process are usually those captured on closed circuit television (CCTV) footage, which are then examined in depth by a Forensic Podiatrist. Gait recognition is the process of identifying people by the unique characteristics of their manner of walking, where features are extracted from a person's gait to recognise them. As with other methods of identification, unknown or questioned footage of the person in relation to a crime scene is compared to recordings that have been made of a 'known' person (also referred to as control footage, see Figures 1 & 2). Conclusions are then made as to the value of the features observed for similarity and dissimilarity in the comparisons and thereby help to either exclude or include an individual/s from the identification. Forensic Gait Analysis may also be used for other purposes in investigations. Rose (1983) [13] proposed that the term 'gait assessment' be applied to the whole method of examining a patient's gait and making suggestions for treatment. In contrast, he advocated the term 'gait analysis' be reserved for the technical side of the gait assessment. However, that suggestion has not been adopted as to the meaning of gait analysis and gait analysis broadly includes both qualitative and quantitative evaluations, depending upon the matter in hand.

(Figures 1 & 2)

Footwear

Podiatrists become involved with the examination of footwear in a forensic context, normally where a suspect has been identified. The main task for the Podiatrist is to associate or dissociate the footwear relating to a crime scene, to the footwear of a suspect [14]. The assessment of the footwear involves analysis, comparison and evaluation of the wear features/patterns of the insole and the external and internal components of the upper of the shoe and outsole. In footwear identification casework, Forensic Podiatrists may have close and complimentary links with footwear/shoe examiners. Although both disciplines may consider the same features and use the same basic approaches of measurement and description, the Forensic Podiatrist is mainly concerned with the interpretation of these features and in considering whether differences observed can be justified between 'unknown' and 'known' feet and worn shoes, or insoles contained or found in the footwear. Additionally, the Podiatrist may examine the footwear of the suspect to determine features, which may demonstrate additional associating or disassociating factors.

Bare Footprints

Bare footprints may be associated with crime scenes creating the potential to connect such footprints with the perpetrator. Podiatrists' involvement in barefoot identification is both explanatory and interpretive. The podiatric emphasis would be on the recognition and application of foot-related conditions and foot dimensions. Given that Podiatrists recognize a condition, state or pathology in an 'unknown' barefoot print; this would be described and compared with the recognized presence or absence of such a condition, state or pathology in a 'known' bare footprint. This requires clinical experience as well as the foundation knowledge and understanding of anatomy of the foot and how movement may affect footprints and the difference between a static impression and that of a dynamic one.

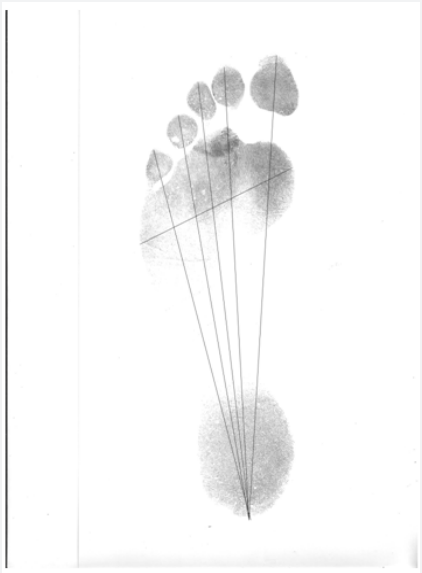

Figure 3: The Gunn Lines.

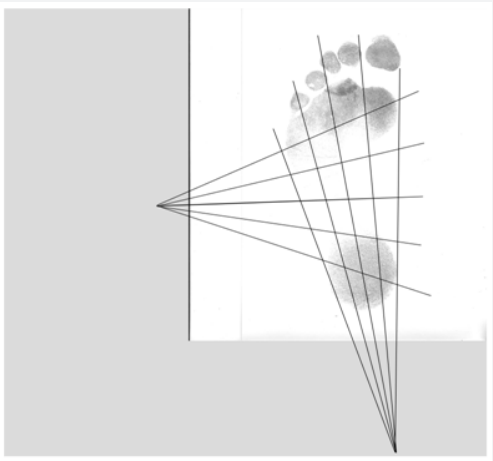

Figure 4: Rossi's Podometric system.

There are various methods used to analyse and interpret bare footprints, from a simple acetate sheet which is overlaid the unknown footprint [15-18] and can be compared with the footprint of the known individual and the use of linear measurement techniques [19-24] and in cases sophisticated computer software [25-31].The linear techniques include the Gunn lines [32] (Figure 3), Rossi's Podometric system [33] (Figure 4) and the Reel method (Figure 5) while the software system used by Kennedy is shown as Figure 6.

How to cite this article: J Gordon B, Haydn D K, Barry E F. Forensic Podiatry - An Overview. J Forensic Sci & Criminal Inves. 2017; 5(3): 555666. DOI: 10.19080/JFSCI.2017.05.555666.

(Figures 3-6).

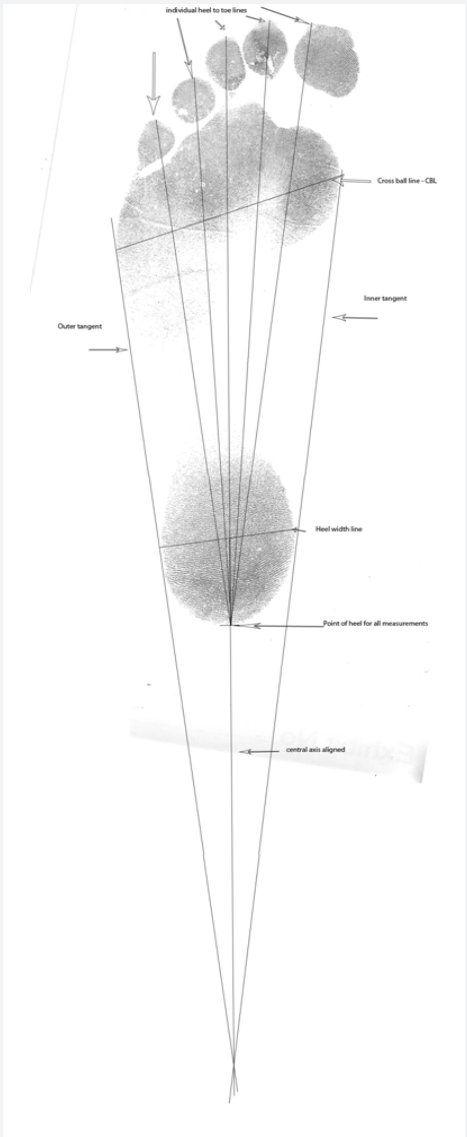

Figure 5: Reel method of linear measurements.

Discussion

The practise of foot-related evidence in criminal investigations is not new and can be researched back to at least 1862 when Jessie McLachlan's footprint placed her at the scene of a woman's murder, for which McLachlan was subsequently convicted [15]. In more modern times, forensic podiatrists have assisted law enforcement in investigations since the 1970s where Dr Norman Gunn assisted in bare footprint analyses [16].

Forensic Podiatry is formally recognised by the International Association for Identification. Also, by the Chartered Forensic Science Society, who have a 'certificate in competency' developed and trialled by that organisation with members of the UK forensic podiatry community. That remains in its infancy, with only a small handful of people having embarked upon it and saw four podiatrists successfully completing the certificate in 2010 and two successfully re-certify in 2015 [16-26].

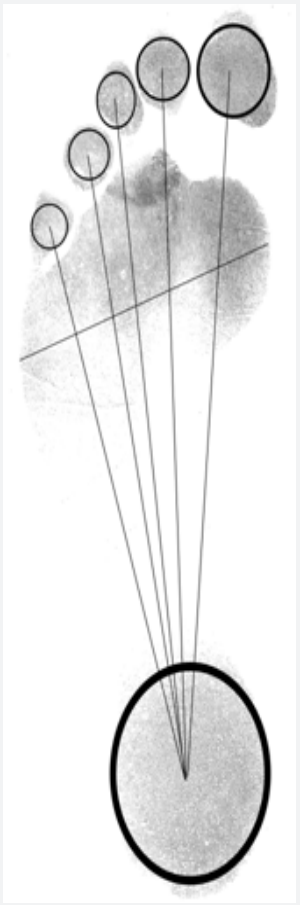

Figure 6: Optical Centre Method of Kennedy.

As one can see Forensic Podiatry casework is not an area that Podiatrists can undertake lightly as there are significant consequences attached to the work, whereby in the criminal justice system some cases someone's freedom is at risk if the evidence is not fully investigated or reported adequately. In the civil arena, there may well be substantial costs associated with giving poor or inadequate evidence in court.

However, the work is rewarding in being able to deploy specialized Podiatry knowledge and expertise within a systematic, scientific way which are helpful to matters in the legal systems. This provides an independent, transparent and unbiased objective report to those instructing the Podiatrist, using observation, analysis, comparison and diagnostic skills associated with the training and experience of a health care professional. As with many forensic areas, there is no single formal route to becoming a Forensic Podiatrist -rather there are a variety of ways to obtain the necessary knowledge, skills, experience and expertise. But there are some routes which would enable a Podiatrist to develop the necessary tools and attributes to foster the requirements of accreditation and experience. These include and not limited to the MSc Forensic Medical Science at Queen Mary, University of London; the Diploma in Human Forensic Identification (DFHID) at the Academy of Forensic Medical Sciences and awarded by the

How to cite this article: J Gordon B, Haydn D K, Barry E F. Forensic Podiatry - An Overview. J Forensic Sci & Criminal Inves. 2017; 5(3): 555666. DOI: 10.19080/JFSCI.2017.05.555666.

Faculty of Forensic & Legal Medicine, Royal College of Physicians, London; and other relevant qualifications pertaining to Forensic Podiatry practise. It is of course significant to appreciate that the knowledge and understanding of the Criminal and Civil Justice systems are essential as are the skills obtained through Expert Witness training - and the latter cannot be emphasized enough before embarking on undertaking expert witness work. As previously mentioned, the insurance needed for this type of work is a pre-requirement. It is up to the individual to determine the length and duration of experience they need as this will be one area that counsel often concentrate on when an opinion is given within either written or oral evidence [26-37].

It is important to remember that all areas of forensic identification are based on probability. Furthermore, when asserting to evidential value, there is a risk that unsubstantiated claims could be made and practitioners need to have cognisance of the evidence or research available and on the limitations of the same, applied on a case by case basis. When using values currently advocated in forensic science disciplines. e.g. Likelihood ratios and the qualitative phrases associated with these likelihood ratio scales, must not be used without full understanding of their relevance. Otherwise the very real risk occurs in misrepresentation and misinterpretation by others (e.g. the court) of such material. It is crucial that qualitative descriptors are not misunderstood nor misrepresented. What is statistically significant in one area of forensic science, may not be so in another! If, or when, data is sparse consider how and where data can be of further assistance to the court, or whether an appropriate qualitative descriptor is of more assistance and safer, without overstating. It is important to be able to separate out qualitative (descriptive) and quantitative (numerical) values and not to erroneously mix the two when it is inappropriate to do so. Both qualitative and quantitative evidence are of assistance to the courts depending on the matter in hand. In the USA the Daubert principle has already been successfully applied in Forensic Podiatry in the case of bare footprint evidence [34]. The English Court of Appeal in R v Otway [2011] when upholding the safety of the use of expert podiatry [gait analysis] evidence in a murder case, stated that: 'The proposition that evidence of a comparison cannot be admitted if its evaluation is expressed in terms [of] subjective experience is simply wrong in law.'[35]

Further information on Forensic Podiatry can be obtained by contacting the authors; and details of the Forensic Podiatry Special Advisory Group, College of Podiatry.

References

1. Vernon W, Brodie B, DiMaggio J, Gunn N, Kelly H, et al. (2009) Forensic Podiatry: Role and Scope of Practice. International Association for Identification p. 1-17.
2. Vernon W, McCourt FJ (1999) Forensic podiatry - a review and definition. British Journal of Podiatry 2(2): 45-48.
3. Vernon W (2007) Formal recognition of forensic podiatry by the International Association for Identification (IAI). Podiatry Now 10(11): 42-42.
4. The Civil Procedure (Amendment) Rules 2016, Ministry of Justice.
5. A Guide to the Criminal Procedure (Amendment) Rules 2016 (s.i. 2016/120), Ministry of Justice.
6. Forrest A (2014) Jones v Kaney: the removal of expert witness immunity and its potential impact on forensic scientists. Diffusion: the UCLan Journal of Undergraduate Research 7(1).
7. Talve, Michael (2016) What Is an Expert Witness? The Expert Institute.
8. Doney IE, Harris PG (1984) Mass disaster identification: Can chiropodists help? Police Surg 25: 14-20.
9. Vernon WV (1994) The potential of podiatry/chiropody records in forensic and mass disaster identification. J Forensic Identification 44(1): 26-40.
10. Sanger D, Vernon W (1997) The value of strength scales in identification from podiatry records. J Forensic Identification 47 (2): 162-170.
11. Kelly HD, Old Bailey Central Criminal Court London. R-V Saunders, 2000
12. http://www.guinnessworldrecords.com/world-records/first-use-of-forensic-gait-analysis-evidence-in-court/
13. Buncombe A (2000) Gang leader is unmasked by his bandy-legged gait. The Independent, London.
14. Rose GK (1983) Clinical gait assessment: a personal view. Journal of Medical Engineering and Technology 7: 273-279.
15. DiMaggio JA, Vernon WV (2011) Forensic Podiatry Principles and Methods. Human Press, New York, USA.
16. Judy Hamilton (2013) Jessie McLachlan in Scottish Murders: From Burke and Hare to Peter Tobin, Kindle edition.
17. Michael S Nirenberg (1989) Forensic Methods and the Podiatric Physician. Journal of the American Podiatric Medical Association 79(5): 247-252.
18. Robbins LM (1985) Footprints - collection, analysis and interpretation, Charles C Thomas, Springfield IL, USA, p. 68.
19. Smerecki CJ, Lovejoy CO (1985) Identification via pedal morphology, International Criminal Police Review 40(390): 186-190.
20. Reel S (2012) Development and evaluation of a valid and reliable footprint measurement approach in forensic identification, PhD Thesis, University of Leeds, York St John University, England, UK.
21. Reel S, Rouse S, Vernon W, Doherty P (2010) Reliability of a two-dimensional footprint measurement approach. Science & Justice 50(3): 113-118.
22. Burrow JG (2016) Bare footprint analysis comparing Two Collection Methods Adopting the Reel Measurement System and Adobe Photoshop. Forensic Res Criminology Int J 2 (2).
23. Burrow JG (2016) The use of the Podotrack in Forensic Podiatry for collection and analysis of bare footprints using the Reel method of measurement. Science & Justice 56(3): 216-222.
24. Burrow JG (2017) A comparison between manual and Digital Measurements in Exemplar Bare Footprint Analysis, International Journal of Forensic Sciences 1(3).
25. Burrow JG (2015) Ghosting of Images in barefoot Exemplar Print Collection: Issues for Analyses. Journal of Forensic Identification 65(6): 884-900.
26. Kennedy RB (2005) Ongoing research into barefoot impression evidence. In: Forensic medicine of the lower extremity human identification and trauma analysis of the thigh, leg and foot. J Rich, DE Dean, RH Powers (Eds.), Humana Press, Totowa, New Jersey, USA, pp. 401-413.

How to cite this article: J Gordon B, Haydn D K, Barry E F. Forensic Podiatry - An Overview. J Forensic Sci & Criminal Inves. 2017; 5(3): 555666. DOI: 10.19080/JFSCI.2017.05.555666.

27. Kennedy RB (2000) Pattern evidence | bare footprint marks. In: Encyclopaedia of forensic sciences, JA Siegel, Elsevier, Oxford, pp. 1189-1195.

28. Kennedy RB (1996) Barefoot comparison and identification research, TM-08-96, Canadian Police Research Centre, Ottawa, Canada.

29. Kennedy RB (1996b) Uniqueness of bare feet and its use as a possible means of identification. Forensic Science International 82(1): 81-87.

30. Kennedy RB, Chen S, Pressman IS, Yamashita AB, Pressman AE (2005) A large-scale statistical analysis of barefoot impressions. Journal of Forensic Sciences 50(5): 1071-1080.

31. Kennedy RB, Pressman IS, Chen S, Petersen PH, Pressman AE (2003) A statistical analysis of barefoot impressions. Journal of Forensic Sciences 48(1): 55-63.

32. Kennedy RB, Yamashita AB (2007) Barefoot Morphology Comparisons: A Summary. Journal of Forensic Identification 57(3): 383-410.

33. Gunn N (1991) Old and new methods of evaluating footprint impressions by a forensic podiatrist. British Journal of Podiatric Medicine and Surgery 3(3): 8-11.

34. Rossi WA (1992) Podometrics: A new methodology for foot typing. Journal of Testing and Evaluation 20(4): 301-311.

35. Nirenberg, Michael, (2016) Meeting a Forensic Podiatry Admissibility Challenge: A Daubert Case Study. J Forensic Sci, 61, 3, 833- 841.

36. The English Court of Appeal in R v Otway (2011) EWCA Crim 3.

37. Further information on the work of the College of Podiatry, Forensic Podiatry Special Advisory Group.

DOI: 10.19080/JFSCI.2017.05.555666