

THE CHARTERED SOCIETY OF PHYSIOTHERAPY

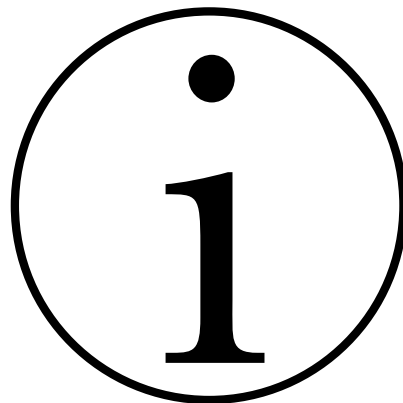
14 BEDFORD ROW, LONDON, WC1R 4ED TEL 020 7306 6666 FAX 020 7306 6611
www.csp.org.uk



Employment Relations & Union Services: Health & Safety – Safe Practice With Electrotherapy (Shortwave Therapies)

ERUS H&S 04

October 1997



Introduction

This factsheet considers the safe and efficacious practice of the electrotherapy modalities of shortwave diathermy (SWD) and pulsed shortwave diathermy (PSWD) [†].

The CSP receives a steady stream of enquiries about shortwave therapies; members often ask both about a small number of research articles which have been published on the subject, and about the 1994 Pregnant Workers Directive. Questions often focus on pregnancy and malignant diseases.

The CSP is not currently aware of any research which specifically investigates a correlation between electrotherapy and malignant disease in physiotherapists. There are a few studies which consider the effect of microwave and SWD/PSWD on miscarriage and/or birth defects experienced by physiotherapists ^{1,2,3,4}. One study showed a weak link with microwave therapy, but the results for SWD/PSWD are inconclusive ². This, and the dearth of other information has, understandably, led to serious concern on the part of CSP members.

[†] For the purpose of this factsheet the term Pulsed Shortwave (PSWD) is used. However, many physiotherapists will be familiar with the more ambiguous term pulsed electromagnetic energy (PEME).

Advice and guidance

In response to an increasing number of enquiries, the CSP convened a cross-Society working group to explore these issues in 1996. This group comprised members who have a special interest in the area, and officers from the Industrial Relations, Professional Affairs and Education Departments. The group has agreed the following guidance:

- Everyone is exposed to a certain amount of background electromagnetic energy in the course of everyday life. However, use of electrotherapy modalities exposes therapists, students, assistants and all others in the vicinity, to additional field strengths. Current good practice indicates that CSP members^{*} should be mindful of their exposure to these additional fields.
- Recent research suggests that with modern SWD/PSWD machines, the field strength beyond 1 metre should fall below the safe exposure limits ^{5,6,7}.
- 1 metre is therefore the minimum recommended distance between a SWD/PSWD machine and a member of staff, another patient or other electrotherapy equipment.
- This “1 metre rule” should be applied to any area where treatment is carried out e.g. wards, cubicles, patients’ homes, places where notes are written etc.
- Remember that 1 metre is still the rule for separate rooms - fields from SWD and PSWD can pass straight through doors and walls!
- Therapists’ exposure when turning on a machine is very small, compared with treating a patient within the field of an adjacent machine; pregnant physiotherapists, or others with concerns, may want to ask a colleague to turn the SWD/PSWD machine on. Almost all modern machines turn themselves off.
- During treatment, CSP members should stay outside the 1 metre zone.
- SWD/PSWD have definite thermal effects ^{8,9}; the Pregnant Workers’ Regulations identify that these may have harmful effects on pregnancy¹⁰.
- Members should always be aware of both the usage and servicing guidelines produced by the manufacturers of their department’s SWD & PSWD machines.
- Members who work outside physiotherapy departments eg GP clinics, clients’ homes etc may have difficulty applying these guidelines. They should ask their employer to carry out a risk assessment, and can always contact the CSP’s Health & Safety Officer for further advice.

- It is suggested that departments draw up guidelines/policies which take into account all the above points.
- * CSP members are referred to throughout. However, this should also be taken to encompass all individuals who maybe in the vicinity of a machine.

Pregnant workers' regulations

The European Pregnant Workers' Directive was incorporated into UK legislation from 1 December 1994, as part of the Management of Health & Safety at Work (Amendment) Regulations. The guidance which accompanies these Regulations makes considerable reference to ionising radiation, but only considers the thermal effects of non-ionising radiations, such as SWD and PSWD. In relation to this the guidance states that exposure should never exceed the restrictions published by the National Radiological Protection Board.

However, the Directive also enshrines the important principle that the work that pregnant women do should be subject to a systematic assessment of risks. Where pregnant workers are concerned and anxious, this risk assessment should include risks of stress.

References

1. Larsen A.I., **Congenital Malformations And Exposure to High Frequency Electromagnetic Radiation Among Physiotherapists**. Scand J Work Environ Health 1991; 17(5):318-23.
2. Ouellet-Hellstrom R, Stewart W F. **Miscarriages Among Female Physical Therapists Who Report Using audio And Microwave-frequency Electromagnetic Radiation**. American Journal of Epidemiology 1993; 138(1):775-786.
3. Guberan E, Campana A, Faval P, Guveran M, Sweetnam P M, Tuyn J W, Usel M., **Gender Ratio of Offspring And Exposure to Shortwave Radiation Among Female Physiotherapists**. Scan J Work Environ Health 1994; 20(5):345-8.
4. Hocking B, Joyner K. **Re: Miscarriages Among Female Physical Therapists Who Report Using Radio and Microwave-frequency Electromagnetic Radiation** (Letter; Comment) American Journal of Epidemiology 1995; **141(3)**:273-4.
5. Martin C J, McCallum H M, Eaton, B. **An Evaluation of Radiofrequency Exposure From Therapeutic Diathermy Equipment in the Light of Current Recommendations** Clinical Physiol Measure 1990; **11(1)**: 53-63.
6. Martin C J, McCallum H M, Strelley S, Eaton, B., **Electromagnetic Fields From Therapeutic Diathermy Equipment: A Reveiw of Hazards And Precautions**. Physiotherapy 1991; **77(1)**: 3-7.
7. McDowell A D, Lunt M J. **Electromagnetic Field Strength Measurements on Megapulse Units**. Physiotherapy 1992; **78(4)**:805-809.
8. Kirnen S, Partridge C. **Review of Shortwave Diathermy Continuous And Pulsed Patterns**. Physiotherapy 2992; **78(4)**: 243-252.
9. Brennan R B, Watson T. **The Thermal Effects of Pulsed Shortwave Therapy**. British Journal of Therapy And Rehabilitation 1995; **2(8)**:430.
10. Health And Safety Executive. **New And Expectant Mothers At Work: A Guide For Employers**. HSE 1994.

Additional information

CSP members should also refer to:

- **Standards for the use of Electrophysical Modalities Practice** - available from CSP Professional Affairs Department (£2.00).
- **Electrotherapy - a selection of CSP journal articles 1990-1992** - available from CSP Journal Department (£10.00).
- **Health & Safety Briefing Paper on Risk Assessment** - available from CSP Industrial Relations Department (Free).
- **Current Awareness Bulletin on Electrotherapy** October 1996 available from Anna Sewerniak, CSP Education Department (£3.50).
- **Codes of Safe Practice - Section 8.1.6., Appendix 6, Safety Representatives Information Manual** - available from CSP Industrial Relations Department (free to safety reps, others £20.00).