

# Awareness and attitudes towards external auditory canal exostosis and its preventability in surfers in the UK: cross-sectional study

S MORRIS<sup>1</sup>, T MARTIN<sup>2</sup>, D MCCAHERN<sup>3</sup>, S BENNETT<sup>1</sup>

<sup>1</sup>School of Health and Population Sciences, University of Birmingham, <sup>2</sup>ENT Department, Worcester Royal Hospital, and <sup>3</sup>Clinical Institute of Applied Health Research, University of Birmingham, UK

## Abstract

**Objectives:** To determine the proportion of UK surfers aware of external auditory canal exostosis, to identify surfer characteristics associated with knowledge of the condition and to explore attitudes to earplug use.

**Method:** An online, cross-sectional survey of UK-based surfers.

**Results:** Of 375 surfers, 86.1 per cent ( $n = 323$ ; 95 per cent confidence interval = 82.3–89.3) reported awareness of external auditory canal exostosis. Further investigation revealed that, despite their awareness of the condition, 23.4 per cent of these surfers (88 out of 323; 95 per cent confidence interval = 19.5–28.0) had little or no knowledge about external auditory canal exostosis. Predictors of knowledge included: distance from nearest surfing beach ( $p = 0.001$ ), surfing standard (ability) ( $p = 0.008$ ), earplug use ( $p = 0.024$ ) and positive external auditory canal exostosis diagnosis ( $p = 0.009$ ).

**Conclusion:** The findings suggest that a significant minority of UK surfers have no knowledge about this condition. Knowledge of external auditory canal exostosis was significantly associated with earplug use when surfing. Efforts to improve surfers' knowledge are required to enable surfers to better protect themselves, which could reduce the incidence of external auditory canal exostosis.

**Key words:** Awareness; Attitude; Cross-Sectional Studies; Ear Canal; Ear Diseases; Ear Protective Devices; Exostoses; General Practitioners; Sports

## Introduction

External auditory canal exostosis, more commonly known as 'surfer's ear', is characterised by bony protrusions within the external auditory canal.<sup>1,2</sup> This abnormal bone growth occurs as a result of an 'evaporative cooling effect', wherein consequential hyperaemia and vasodilation after exposure to cold water lead to increased osteoblast activity and hyperostosis near the tympanic ring.<sup>3,4</sup>

The stage of external auditory canal exostosis is directly related to the duration of cold water exposure, with regular exposure increasing the risk of external auditory canal exostosis development by 10 per cent per annum.<sup>5–9</sup> In the UK, 500 000 surfers per year are exposed to seawater below 19 °C, the critical temperature for external auditory canal exostosis development.<sup>10–13</sup>

Estimates suggest that external auditory canal exostosis is present in 63 per cent of UK surfers, and that 28 per cent are afflicted with symptoms including

otalgia, recurrent otitis externa and hearing loss.<sup>14,15</sup> Surgical intervention is the sole means of restoring auditory canal patency and eradicating these symptoms.<sup>1,2</sup>

Earplugs limit cold water entry to the ear when surfing and can reduce the incidence of external auditory canal exostosis.<sup>16</sup> Despite this, their use is limited amongst surfers, with only 2–15 per cent currently reporting regular practice.<sup>14,17</sup>

Awareness of the preventability of external auditory canal exostosis may influence earplug use amongst surfers and halt the growing prevalence of this condition.<sup>15</sup> However, there is currently little evidence regarding surfers' awareness of external auditory canal exostosis and their attitude to earplug use. One cross-sectional study reported that 60 per cent of surfers were aware of surfer's ear.<sup>17</sup> That study was limited to 92 participants and, as such, the findings may not be generalisable to surfers across the UK.

Presented at the South West ENT Academic Meeting, 19 June 2015, Bath, and at the British Academic Conference in Otolaryngology, 8–10 July 2015, Liverpool, UK.

Accepted for publication 2 March 2016 First published online 6 June 2016

This study reports the findings of a cross-sectional survey conducted to determine the proportion of surfers aware of external auditory canal exostosis and to establish the levels of knowledge regarding this condition. In addition, it explores: surfer characteristics associated with knowledge of external auditory canal exostosis, attitudes amongst surfers towards earplug use, and favourable means of educating the surfing population.

## Materials and methods

### *Ethical considerations*

The University of Birmingham Internal Ethics Review Committee approved the study in January 2015.

### *Study design*

A cross-sectional survey of UK surfers was conducted. A questionnaire was designed to collect data, utilising a tick-box format of categorical options and Likert scales, in four sections as below.

Section one addressed surfer characteristics. Participants were asked to report their age, gender, surfing habits and standard (using the Hutt surfing skill scale<sup>18</sup> (beginner = 1, 2, 3; intermediate = 4, 5; and advanced = 6, 7, 8)), earplug use, external auditory canal exostosis related aural symptoms, and diagnosis of and past surgical treatment for external auditory canal exostosis.

Section two focused on surfers' awareness and knowledge of external auditory canal exostosis. The proportion of surfers aware of external auditory canal exostosis was assessed using an explicit yes or no question. Those answering 'yes' were directed to consider 10 factual statements, with 5-point Likert scales used to ascertain participants' external auditory canal exostosis 'knowledge'.

Section three examined surfers' attitude to earplug use. Ten attitude statements with five-point Likert scales attempted to explore the barriers felt by participants towards wearing earplugs when surfing.

Finally, section four addressed information provision. Participants identified the most preferable means for delivery of external auditory canal exostosis advice.

The questionnaire was informed by existing literature, lay texts, and discussions with surfers and otolaryngologists who are experienced in external auditory canal exostosis. It was piloted with four experienced surfers and amended correspondingly prior to distribution.

### *Setting*

Data collection occurred between January and April 2015. Links to the online questionnaire were distributed to the member lists of a national surfing organisation (Surfing Great Britain) and to 12 surf clubs from across the UK, and distributed in person to surfers at beaches in South Wales and Devon.

### *Participants*

Individuals were eligible to participate if they had surfed for more than 6 months in the UK and were aged 18 years or older. Participants were informed that submission of a completed questionnaire signified consent to use of their anonymised data in analysis and publication.

### *Sample size*

The only existing survey of surfers' awareness of external auditory canal exostosis in the UK estimated a level of awareness of 60 per cent.<sup>17</sup> Based on this, a sample size of 369 was required to detect a 60 per cent proportion of surfers aware of external auditory canal exostosis, with a 5 per cent margin of error and 95 per cent confidence intervals (CIs).<sup>19</sup>

### *Data management*

The five-point Likert scale response options for the knowledge and attitude statements were coded from  $-2$  to  $+2$  (strongly agree to strongly disagree). Data generated from these responses were used to calculate a total score out of  $\pm 20$ .

Participants with scores of  $-20$  to  $+5$  (who responded incorrectly to more than five statements) were classified as having poor knowledge of external auditory canal exostosis. Those with scores of  $+6$  to  $+14$  were considered to have good knowledge and those with scores of  $+15$  to  $+20$  were classified as having excellent knowledge. In this study, 'awareness' was considered a positive answer to the initial yes/no question and 'knowledge' was considered a good or excellent response to the Likert statements. The 10 attitude statements categorised participants as having an overall positive (total attitude score of more than 0), neutral (score of 0) or negative (score of less than 0) attitude towards earplug use.

### *Statistical methods*

Statistical analysis was undertaken using SPSS<sup>®</sup> software, version 19.0. Descriptive analysis was undertaken to generate means and standard deviations (SDs). Univariate analysis (chi-square and Fisher's exact tests) and multivariate analysis (a binary logistic regression) were used to explore relationships between external auditory canal exostosis knowledge and surfer characteristics.

## Results

### *Background characteristics*

Of 402 questionnaires that were returned, 375 were fully completed and included in the analysis. There were 303 (80.8 per cent) male respondents and 72 (19.2 per cent) female respondents. The mean age of the sample was 34.42 years (SD = 12.50) (Table I). A previous positive diagnosis of external auditory canal exostosis was reported by 102 participants, 30 of whom had undergone surgery for the condition.

TABLE I  
PATIENTS' BACKGROUND CHARACTERISTICS\*

Characteristic	Value
Age (years)	
– Mean $\pm$ SD	34.42 $\pm$ 12.50
– Range	18–65
Gender ( <i>n</i> (%))	
– Male	303 (80.8)
– Female	72 (19.2)
Employment status ( <i>n</i> (%))	
– Student	87 (23.2)
– Employed	263 (70.1)
– Out of work or retired	25 (6.7)
Hutt surfing standard <sup>18</sup> ( <i>n</i> (%))	
– Beginner	83 (22.2)
– Intermediate	107 (28.5)
– Advanced	185 (49.3)
EACE symptoms ( <i>n</i> (%))	
– Symptom-free	112 (29.9)
– Clinically significant <sup>†</sup>	263 (70.1)
GP diagnosis of EACE ( <i>n</i> (%))	
– No	273 (72.8)
– Yes	102 (27.2)
Previous surgery for EACE ( <i>n</i> (%))	30 (8.0)

\*Total *n* = 375. <sup>†</sup>Clinically significant symptoms were: otalgia, otitis externa, tinnitus and temporary deafness. SD = standard deviation; EACE = external auditory canal exostosis; GP = general practitioner

Earplugs were used by 40.0 per cent of the respondents (*n* = 150; 95 per cent CI = 35.0–44.9).

#### *Awareness and knowledge of external auditory canal exostosis*

A total of 323 individuals (86.1 per cent; 95 per cent CI = 82.3–89.3) reported that they were aware of external auditory canal exostosis.

Data derived from the subsequent 'knowledge' Likert statements revealed that 36 of the 323 individuals had poor knowledge of external auditory canal exostosis, 172 had good knowledge and 115 had excellent knowledge (Figure 1).

After combining those individuals with a 'good' and 'excellent' response to the knowledge statements, 76.6 per cent (287 out of 375; 95 per cent CI = 72.0–80.5) were classified as having 'knowledge'. After combining those with no awareness and a 'poor' knowledge response, 23.4 per cent (*n* = 88; 95 per cent CI = 19.5–28.0) were classified as having 'no knowledge'.

There was variability in the proportion of aware surfers who held knowledge, particularly regarding the treatment for external auditory canal exostosis: only 35.6 per cent demonstrated knowledge that

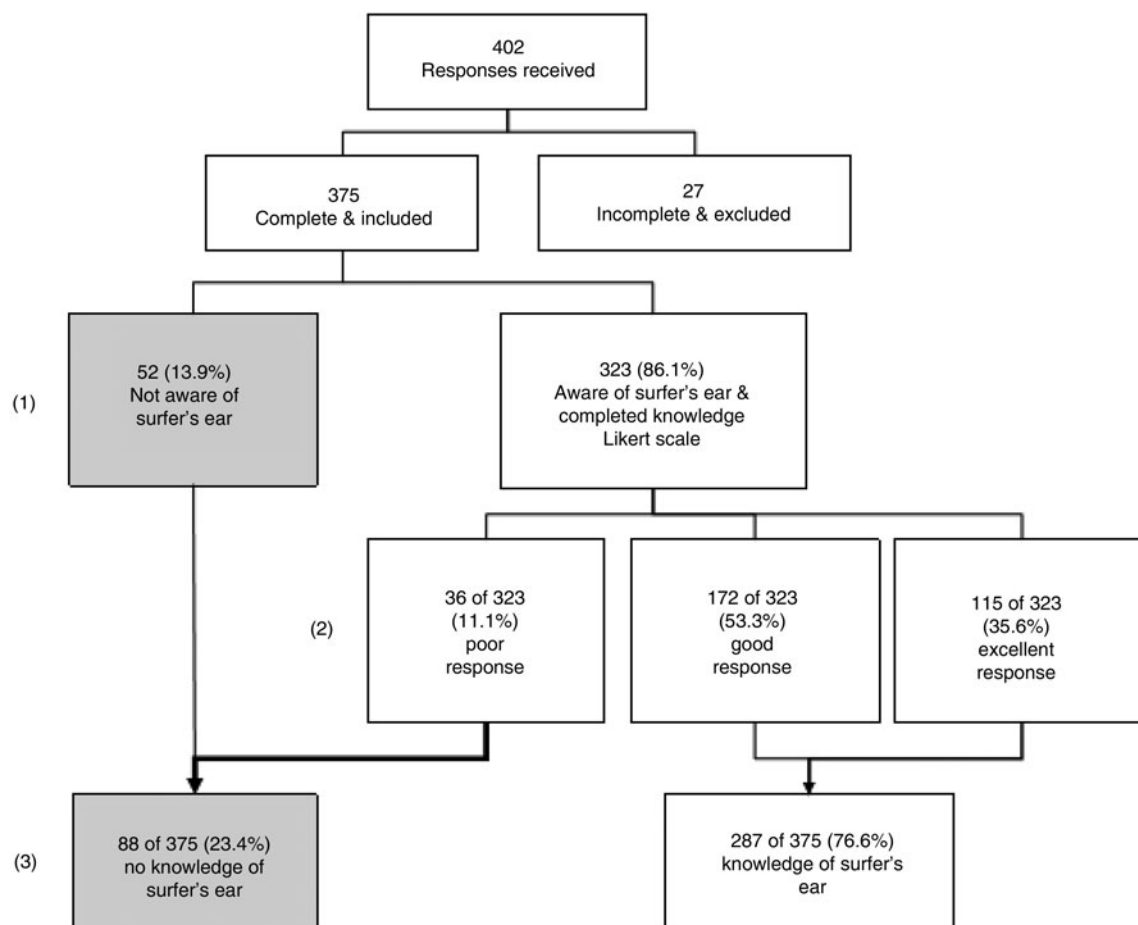


FIG. 1

Flowchart of participation, highlighting: (1) respondents' awareness of external auditory canal exostosis (based on responses to a yes/no question); (2) their level of knowledge about the disease (based on responses to knowledge Likert statements); and (3) existence of knowledge (binary knowledge categories, as used for univariate and multivariate analyses).

**TABLE II**  
RESPONSES OF 'AWARE SURFERS' TO KNOWLEDGE LIKERT SCALE STATEMENTS\*

Knowledge Likert statement	Summary of responses (n (%))	
	Incorrect/don't know	Correct
Surgery is the only cure for EACE	115 (35.6)	208 (64.4)
Wind chill does contribute to EACE	91 (28.2)	232 (71.8)
All surfers are at risk of EACE	74 (22.9)	249 (77.1)
EACE can completely close up ear canal	70 (21.7)	253 (78.3)
EACE is due to cold water exposure	61 (18.9)	262 (81.1)
You cannot see EACE by looking in mirror	54 (16.7)	269 (83.3)
EACE can be prevented	46 (14.2)	277 (85.8)
EACE is due to bone growth in ear canal	41 (12.7)	282 (87.3)
EACE features ear infections & hearing loss	32 (9.9)	291 (90.1)
Only long-term surfers get EACE	28 (8.7)	295 (91.3)

\*A total of 323 surfers were aware of external auditory canal exostosis. EACE = external auditory canal exostosis

surgery is required to correct external auditory canal exostosis (Table II).

Univariate and multivariate analyses were performed to identify surfer characteristics associated with 'knowledge' versus 'no knowledge'. All independent variables from section one of the questionnaire were tested, controlling for age and gender (Table III).

Four independent variables were significantly associated with 'knowledge' in the multivariate analysis: Hutt's surfing standard<sup>18</sup> (compared to the beginner

surfer (reference), the odds ratio for the intermediate surfer was 2.621 ( $p = 0.013$ ), and the odds ratio for the advanced surfer was 3.715 ( $p = 0.003$ )), living less than five miles from the nearest surfing beach (odds ratio = 2.846,  $p = 0.001$ ), being an earplug user (odds ratio = 2.367,  $p = 0.024$ ) and a previous positive diagnosis of external auditory canal exostosis (odds ratio = 15.837,  $p = 0.009$ ). Experience of clinical symptoms and the number of years surfed were not significantly associated with knowledge.

*Attitudes to earplug use*

Of the respondents, 69.6 per cent were categorised as having a positive attitude towards earplug use (Figure 2). Three leading barriers to earplug use emerged from the attitude Likert data: 82.4 per cent agreed that earplugs adversely affect hearing, 51.4 per cent agreed that earplugs interfere with the feeling of immersion in the sea and 41.1 per cent agreed that earplugs are uncomfortable. Of the 225 individuals who did not wear earplugs, 56.0 per cent ( $n = 126$ ) said they would use earplugs if they knew more about external auditory canal exostosis.

*Information provision*

Of all the respondents, 84.0 per cent ( $n = 315$ ) reported that they would benefit from greater levels of surfing-related health advice. Overall, 61.1 per cent of respondents favoured the delivery of surfing health advice via social media, 9.3 per cent via magazine articles, 8.3 per cent via a medical speaker at surf club meetings and 5.3 per cent via leaflets at general practitioner surgeries.

**TABLE III**  
UNADJUSTED AND ADJUSTED ODDS RATIOS FOR SURFER CHARACTERISTICS PREDICTIVE OF 'KNOWLEDGE' OVER 'NO KNOWLEDGE'

Independent variable	Unadjusted values			Adjusted values (from binary logistic regression)		
	OR	95% CI	p	OR	95% CI	p
Earplug use	4.322	2.367–7.892	0.000	2.367	1.122–4.992	0.024
EACE diagnosis	14.920	4.599–48.402	0.000	15.834	2.014–24.504	0.009
EACE surgery	4.649	1.085–19.920	0.023	9.160	0.748–12.237	0.083
Experience of clinically significant symptoms*	2.488	1.513–4.092	0.000	1.042	0.563–1.930	0.896
Number of years surfed						
– <4 (reference)				1.000		0.160
– 5–14	2.720	1.496–4.945	0.001	1.694	0.784–3.662	0.180
– >15	4.954	2.632–9.322	0.000	0.832	0.290–2.391	0.733
Employment status						
– Student (reference)				1.000		0.203
– Employed	3.968	2.324–6.775	0.000	1.839	0.710–4.763	0.209
– Unemployed	1.994	0.756–5.263	0.174	0.691	0.152–3.139	0.632
Living <5 miles from beach	4.386	2.544–7.519	0.000	2.846	1.502–5.392	0.001
Hutt surf standard <sup>18</sup>						
– Beginner (reference)				1.000		0.008
– Intermediate	3.051	1.639–5.679	0.000	2.621	1.221–5.267	0.013
– Advanced	6.552	3.548–12.098	0.000	3.715	1.557–8.865	0.003

Age and gender were controlled for in all variables. \*Clinically significant symptoms were: otalgia, otitis externa, tinnitus and temporary deafness. OR = odds ratio; CI = confidence interval; EACE = external auditory canal exostosis

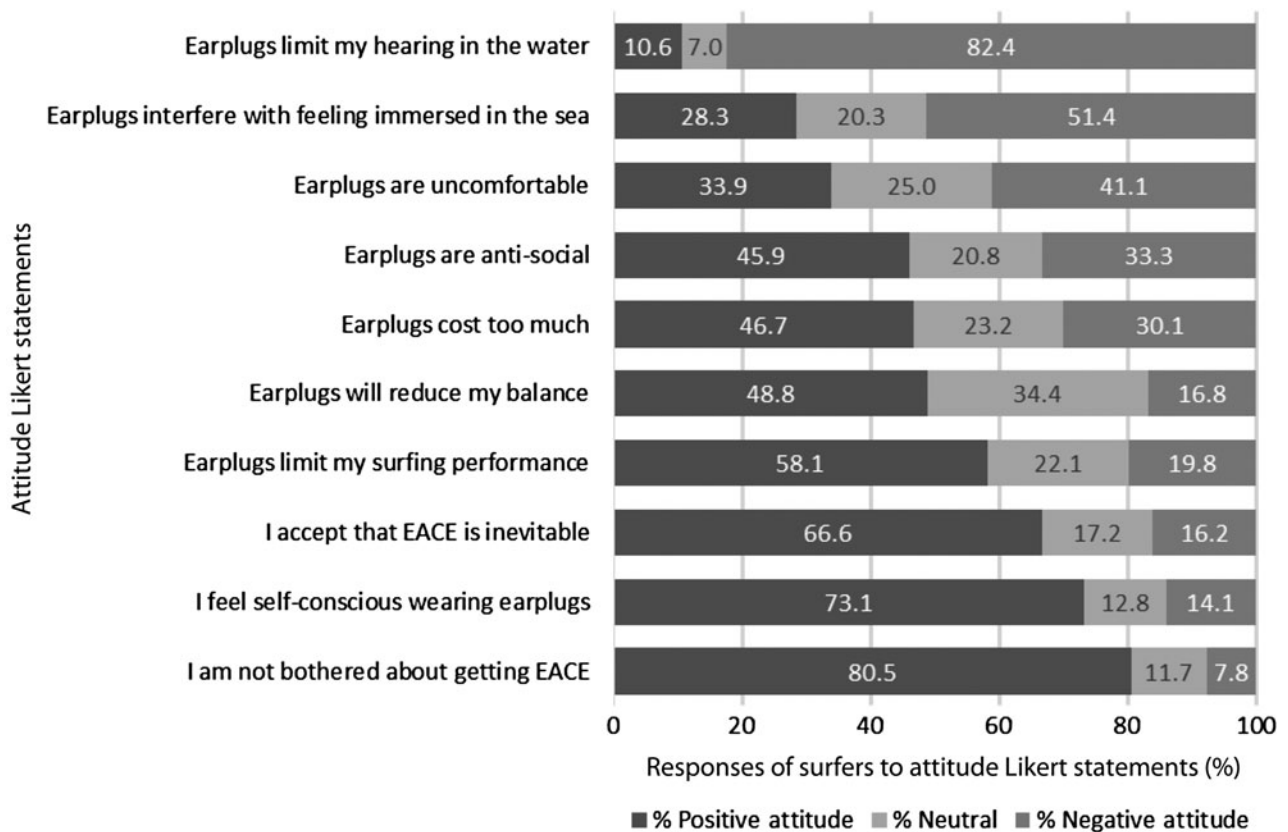


FIG. 2

Responses of 375 surfers to attitude Likert scale statements. EACE = external auditory canal exostosis

## Discussion

### *Synopsis of key results*

The findings indicate that 86.1 per cent of surfers are aware of external auditory canal exostosis; however, further investigation showed that not all 'aware' surfers were necessarily well informed about the implications of external auditory canal exostosis. This proportion is greater than Reddy and colleague's estimate of 60 per cent;<sup>17</sup> nevertheless, experienced surfers were predominantly represented in the current study's sample (49.3 per cent were advanced in terms of Hutt's surfing standard<sup>18</sup>).

The presence of symptoms, previous surgery, number of years' surfing experience and employment status were associated with knowledge in the unadjusted analysis; however, these factors were not significant contributors in the multivariate model when the effect of age, gender and all other independent variables were controlled for. The multivariate analysis findings suggest that surfers who used earplugs were twice as likely to have knowledge about external auditory canal exostosis as surfers who did not (odds ratio = 2.37). In addition, those with a previous diagnosis of external auditory canal exostosis were considerably more likely to have knowledge of the condition than those without a diagnosis (odds ratio = 15.83). This suggests that many surfers may gain knowledge about external auditory canal exostosis through interaction

with a medical practitioner, rather than from health promotional sources.

Over half of the respondents did not use earplugs (60.0 per cent); however, the majority of these individuals (56.0 per cent) reported that they would use earplugs if they knew more about external auditory canal exostosis.

It is possible that surf organisations are currently under-utilised as sources for surfing health advice. Respondents indicated that more health information would be welcome via several routes, although the most effective means of delivering this is inconclusive. Social media was the most popular choice amongst the participants (61.1 per cent). Indeed, social media has proven benefits as a health education tool.<sup>20</sup> Therefore, education via social media through surf schools and organisations for the novice, symptom-free population may be useful to minimise the number of surfers developing this condition.

### *Strengths and limitations*

This is the largest study of external auditory canal exostosis to date. By employing both in person and online recruitment methods, the questionnaire was accessible to surfers across the UK, and, as such, the findings are likely to be generalisable to the UK's surfing population. Unlike previous studies, this survey used several questions to assess knowledge of external auditory

canal exostosis, making this a more robust determination of knowledge level. Nevertheless, although the aural symptoms self-reported are presumed to be those specified, other otological morbidities may have been misreported by the participants.

#### Applicability of study

Previous studies have attempted to capture the burden of this disease by examining surfers' ears at various locations worldwide. The estimated prevalence of external auditory canal exostosis is: 30.0 per cent in Australia,<sup>21</sup> 59.8 per cent in Japan<sup>9</sup> and 61.0 per cent in the Basque Coast.<sup>22</sup> Therefore, based on current literature, this places the external auditory canal exostosis prevalence in the UK as the highest worldwide (63.0 per cent).<sup>15</sup>

Studies agree that it takes approximately 10 years of surfing, which equates to over 5000 hours, in order to acquire clinically significant disease.<sup>4,14,21–24</sup> Thus, this produces a 10-year lag-phase, which may make external auditory canal exostosis an increasing part of the future ENT surgeon's workload.<sup>24</sup> Currently in the Royal Cornwall Hospital, an average of 13 external auditory canal exostosis operations are completed annually.<sup>15</sup> Over the last 9 years, this represents an average increase of 1.23 operations per year, supporting the 'lag-phase'.<sup>15</sup>

- **External auditory canal exostosis, or 'surfer's ear', is estimated to affect 63 per cent of UK surfers, the highest estimated prevalence worldwide**
- **Evidence suggests that earplug use when surfing may prevent growth of exostoses**
- **Of surfers surveyed, 23.4 per cent had no knowledge of this condition**
- **Knowledge of external auditory canal exostosis was associated with earplug use, higher surfing standard, living close to a surfing beach and a positive diagnosis**
- **Eighty-four per cent stated they would benefit from improved surfing health advice delivery, e.g. via social media**
- **Medical practitioners should make relevant individuals aware of the risk of disease progression with continued, unprotected surfing**

Studies agree that earplug use can reduce the need for surgical intervention. In Alexander and colleagues' cross-sectional study, subjects were less likely to have evidence of external auditory canal exostosis if they were regular users of earplugs.<sup>14</sup> Likewise, a 10-year follow up of post-operative patients showed that earplug use significantly reduced external auditory canal exostosis recurrence.<sup>16</sup>

These benefits of earplug use and the consequences of surfing without earplugs should be recognised by health practitioners, and surfing organisations should appreciate their role in educating individuals about the risk of external auditory canal exostosis progression with continued, unprotected surfing.

#### Conclusion

The current findings suggest that a proportion of the UK's surfing community are unaware of external auditory canal exostosis. Surfers with knowledge of external auditory canal exostosis are more likely to use earplugs. With surfing becoming an increasingly popular sport in the UK, improved awareness of external auditory canal exostosis amongst the currently unaware and undiagnosed populations is likely to be valuable. An educational social media campaign may improve surfers' knowledge of external auditory canal exostosis, earplug habits and, in turn, the burden of this preventable condition.

#### Acknowledgements

The authors would like to thank Dr Sayeed Haque for his statistical advice, Dr Frederique Tan for her guidance, Tom Anderson, from Surfing Great Britain, and all surf clubs and participants.

#### References

- 1 Seftel D. Ear canal hyperostosis - surfer's ear: an improved surgical technique. *Arch Otolaryngol Head Neck Surg* 1977;**103**: 58–60
- 2 Everline C, Nathanson A, Renneker M. *Surf Survival*. New York: Skyhorse, 2011
- 3 King J, Kinney A, Iacobellis S, Alexander TH, Harris JP, Torre P *et al*. Laterality of exostosis in surfers due to evaporative cooling effect. *Otol Neurotol* 2010;**31**:345–51
- 4 Cooper A, Tong R, Neil R, Owens D, Tomkinson A. External auditory canal exostoses in white water kayakers. *J Sports Med* 2010;**44**:144–7
- 5 Harrison DF. The relationship of osteomata of the external auditory meatus to swimming. *Ann R Coll Surg Engl* 1962;**31**: 187–201
- 6 Kennedy G. The relationship between auditory exostoses and cold water: a latitudinal analysis. *Am J Phys Anthropol* 1986; **71**:401–15
- 7 Mlynski R, Radeloff A, Brunner K, Hagen R. Exostoses of the external auditory canal. Is the cold water hypothesis valid for patients in continental areas? [In German] *HNO* 2008;**56**: 410–16
- 8 Chaplin J, Stewart I. The prevalence of exostoses in the external auditory meatus of surfers. *Clin Otolaryngol* 1998;**23**:326–30
- 9 Nakanishi H, Tono T, Kawano H. Incidence of external auditory canal exostoses in competitive surfers in Japan. *Arch Otolaryngol Head Neck Surg* 2011;**145**:80–5
- 10 Kroon D, Lawson M, Derkay C, Hoffmann K, McCook J. Surfer's ear: external auditory exostoses are more prevalent in cold water surfers. *Arch Otolaryngol Head Neck Surg* 2002; **126**:499–504
- 11 United Kingdom Sea temperatures 2014. In: <http://www.sea-temperature.org/europe/united-kingdom/> [20 February 2015]
- 12 Defra Charting Progress 2. In: [http://chartingprogress.defra.gov.uk/feeder/Scetion\\_3.6\\_Leisure\\_and\\_Recreation.pdf](http://chartingprogress.defra.gov.uk/feeder/Scetion_3.6_Leisure_and_Recreation.pdf) [20 February 2015]
- 13 Surfers Against Sewage. The economic impact of domestic surfing on the United Kingdom. In: <http://www.sas.org.uk/wp-content/uploads/SAS-Economic-Impact-of-domestic-surfing-on-the-UK-med-2.pdf> [12 February 2015]
- 14 Alexander V, Lau A, Beaumont E, Hope A. The effects of surfing behaviour on the development of external auditory canal exostosis. *Eur Arch Otorhinolaryngol* 2015;**272**:1643–9

- 15 Attlmayr B, Smith I. Prevalence of 'surfer's ear' in Cornish surfers. *J Laryngol Otol* 2015;**129**:440–4
- 16 Timofeev I, Notkinan N, Smith IM. Exostoses of the external auditory canal: a long-term follow-up study of surgical treatment. *Clin Otolaryngol Allied Sci* 2004;**29**:588–94
- 17 Reddy V, Abdelrahman T, Lau A, Flanagan PM. Surfers' awareness of the preventability of 'surfer's ear' and use of water precautions. *J Laryngol Otol* 2011;**125**:551–3
- 18 Hutt J, Black K, Mead S. Classification of surf breaks in relation to surfing skill. *J Coastal Res* 2001;**29**:66–81
- 19 Raosoft. Sample Size Calculator. In: <http://www.raosoft.com/samplesize.html> [20 February 2015]
- 20 Jones K, Eathington P, Baldwin K, Sipsma H. The impact of health education transmitted via social media or text messaging on adolescent and young adult risky sexual behaviour: a systematic review of the literature. *Sex Transm Dis* 2014;**41**:413–19
- 21 Hurst W, Bailey M, Hurst B. Prevalence of external auditory canal exostoses in Australian surfboard riders. *J Laryngol Otol* 2004;**118**:348–51
- 22 Altuna Mariezkurrena X, Gómez Suárez J, Luqui Albisua I, Veá Orte JC, Algaba Guimerá J. Prevalence of exostoses among surfers of the Basque Coast [in Spanish]. *Acta Otorrinolaringol Esp* 2004;**55**:364–8
- 23 Deleyiannis F, Cockcroft B, Pinczower E. Exostoses of the external auditory canal in Oregon surfers. *Am J Otolaryngol* 1996;**17**:303–7
- 24 Lennon P, Murphy C, Fennessy B, Hughes J. Auditory canal exostoses in Irish surfers. *Ir J Med Sci* 2015;**185**:183–7

Address for correspondence:

Mr Simon Morris,  
143 Warwards Lane,  
Selly Oak,  
Birmingham B29 7QX, UK

Fax: 0121 414 3759

E-mail: [simonrhysmorris@yahoo.co.uk](mailto:simonrhysmorris@yahoo.co.uk)

---

Mr S Morris takes responsibility for the integrity of the content of the paper  
Competing interests: None declared

---