reported case, some patients could be very sensitive to their occlusal changes and show a variety of psychosomatic symptoms.[5] Therefore, we agree with the authors' conclusion highlighting that minimal intervention should be considered initially, not invasive irreversible treatment.

*T. T. H. Tu, Ho Chi Minh, Vietnam; M. Watanabe, A. Toyofuku, Tokyo, Japan; U. Yojiro, Fukuoka, Japan*

### References


1. Byrne M J, Taylor C L. Composite psychological distress. *Br Dent J* 2022; **286:** 287.
2. Jagger R G, Korszun A. Phantom bite revisited. *Br Dent J* 2004; **197:** 241–243.
3. Tu T T H, Watanabe M, Nayanar G K *et al.* Phantom bite syndrome: Revelation from clinically focused review. *World J Psychiatry* 2021; **11:** 1053–1064.
4. Kelleher M G, Rasaratnam L, Djemal S. The paradoxes of Phantom Bite Syndrome or occlusal dysaesthesia ('dysesthesia'). *Dent Update* 2017; doi: 10.12968/denu.2017.44.1.8.
5. Watanabe M, Hong C, Liu Z *et al.* Case Report: Iatrogenic Dental Progress of Phantom Bite Syndrome: rare cases with the comorbidity of psychosis. *Front Psychiatry* 2021; doi: 10.3389/fpsyt.2021.701232.


https://doi.org/10.1038/s41415-022-4406-4

## Pain management

### Percussion therapy in dentistry

Sir, in recent times, there has been an increase in percussion therapy massage devices on the market. This involves rapid vibrations and pulsing movements penetrating overworked muscles after workouts; however, there is currently very little scientific evidence on their effectiveness.[1]

The COVID-19 pandemic has been incredibly tough for everyone; adults have had less social interaction, more people are working from home, children have uncertain and confusing futures. This period has led to diminished dental health leading to TMD, bruxism and myofascial pain.[2] Current treatment involves painkillers, soft occlusal bite guards and relaxation techniques. We question whether percussion therapy could be used to soothe the muscular pain in the head and neck. Evidence from 20 years ago suggested excellent results in the management of facial pain.[3]

For obvious reasons, one would not normally suggest applying repetitive forces anywhere near the cranial region; however, many of these devices allow softer attachments, reduced vibrations and lighter force which could be altered for treatment of the muscle of mastication. As with any medical device, appropriate instructions would need to be provided to patients to ensure they are using the device correctly, and are aware of the potential side effects of failing to follow guidance. Although rare, serious complications have been associated with these devices.[4]

*A. Patel, E. K. Fallon, Liverpool, UK*

### References


1. Konrad A, Glashüttner C, Reiner M M, Bernsteiner D, Tilp M. The acute effects of a percussive massage treatment with a hypervolt device on plantar flexor muscles' range of motion and performance. *J Sports Sci Med* 2020; **19**: 690–694.
2. Emodi-Perlman A, Eli I, Smardz J *et al.* Temporomandibular disorders and bruxism outbreak as a possible factor of orofacial pain worsening during the COVID-19 pandemic – concomitant research in two countries. *J Clin Med* 2020; doi: 10.3390/jcm9103250.
3. Vibration therapy for pain. *Lancet* 1992; **339:** 1513–1514.
4. Chen J, Zhang F, Chen H, Pan H. Rhabdomyolysis after the use of percussion massage gun: a case report. *Phys Ther* 2021; doi: 10.1093/ptj/pzaa199.


https://doi.org/10.1038/s41415-022-4407-3

## Oral health

### New Japan dental policy

Sir, Prime Minister Kishida in Japan will launch a new policy of requiring all Japanese citizens to undergo dental checkups.[1] All citizens in Japan will receive a dental checkup once a year, which is currently mandatory through high school. However, a serious problem with mandatory dental checkups for all citizens is that dental checkups alone do not improve health. Dental checkups and treatment can improve health. In other words, the mandatory policy should include dental checkups and treatment.

The COVID-19 pandemic added to the problems of dental care and interfered with dental patient visits.[2] The latest study in Japan showed that the COVID-19 pandemic has been disturbing dental checkups.[3]

*Y. Takefuji, Musashino University, Japan*

### References


1. Nikkei. Mandatory dental medical examination, clearly stated in the bold policy plan. 2022. Available at: https://www.nikkei.com/article/DGXZQOUA315CK0R30C22A5000000/ (accessed June 2022).
2. Ahmed M A, Jouhar R, Ahmed N *et al.* Fear and practice modifications among dentists to combat novel coronavirus disease (COVID-19) outbreak. *Int J Environ Res Public Health* 2020; doi: 10.3390/ijerph17082821.
3. Oshima K, Miura H, Tano R, Fukuda H. Factors associated with regular dental checkups' discontinuation during the COVID-19 pandemic: a nationwide cross-sectional web-based survey in Japan. *Int J Environ Res Public Health* 2022; doi: 10.3390/ijerph17082821.


https://doi.org/10.1038/s41415-022-4408-2

### Vaping misrepresentations

Sir, we read with interest a recent research paper[1] and 'Research Insights' summary[2] on the erosive potential of 'vapes'.

We were disappointed to see several basic errors and misrepresentations. We would like to correct the five most major errors:

- E-cigarettes do not contain tobacco and should not be categorised as such[3]
- The authors incorrectly claim that nicotine causes a 'high risk of oral and whole-body health complications'. They cite a WHO poster which presents the effects of whole tobacco smoke on health, not the effect of nicotine. Nicotine has been used in the form of NRT for over 30 years, including in pregnant women, and is regarded as extremely safe, even for long-term use
- The authors claim that e-cigarettes are associated with cancer. The supporting reference does not make this claim and in fact states 'no long-term evidence related to oral and systemic health effects exist'
- The authors state that 'diacetyl is found in most flavoured vapes'. Again, the supporting reference is inappropriate and did not assess diacetyl levels in any way. Moreover, diacetyl is banned as an ingredient from e-cigarettes and e-liquids in the UK
- The authors grossly misrepresent the public health guidance on e-cigarette use as a smoking cessation device. For example, they cite a 12-year-old WHO document (a lifetime in e-cigarette policy!) There is a lack of balance in the material cited; the positions of PHE and NICE on the usefulness of e-cigarettes in smoking cessation, and their relative safety compared to tobacco cigarettes, are not acknowledged.

The experiment itself appeared technically sound. It was encouraging that the nicotine containing e-liquids (used by the vast majority of vapers) had an alkaline pH.

A major limitation of the study is that it is not representative of the real-life scenario. The data should not be over-interpreted, and further *in vitro* modelling studies and clinical studies are needed. Our research group has previously explored this subject using a state-of-the-art research vaping machine, designed to simulate human use. Preliminary data showed minimal changes in pH even after prolonged vaping sessions (data unpublished).

We would point UK dental professionals to the well-considered public health guidance which basically concludes that, for the best chances of quitting smoking, one should use support and pharmacotherapy and that e-cigarettes can be part of that package. Several recent reviews on this topic are available[4,5,6] which provide references to guidance documents.

*R. Holliday, E. McColl, A. Weke, Z. Sayeed, Newcastle, UK*


### References

1. Fairchild R, Setarehnejad A. Erosive potential of commonly available vapes: a cause for concern? *Br Dent J* 2021; **231:** 487–491.
2. Bartlett D. Expert view: David Bartlett. *Br Dent J* 2021; **231:** 700.
3. Munafò M. Are e-cigarettes tobacco products? *Nicotine Tobacco Res* 2018; **21**: 267.
4. Holliday R, Chaffee B W, Jakubovics N S, Kist R, Preshaw P M. Electronic cigarettes and oral health. *J Dent Res* 2021; **100**: 906–913.
5. Chaffee B W, Couch E T, Vora M V, Holliday R S. Oral and periodontal implications of tobacco and nicotine products. *Periodontol 2000* 2021; **87**: 241–253.
6. Weke A, Holliday R. Electronic cigarettes: an update on products, regulation, public health approaches and oral health. *Community Dent Health* 2022; **39:** 68–73.

https://doi.org/10.1038/s41415-022-4409-1


## Dental radiography

### The dangers of toy magnets

Sir, a four-year-old child recently attended with their mother regarding the loss of a tooth after a fall from a balance bike a few days previously. The child's mother was worried that the tooth could not be found. On examination, the upper right primary central incisor (51) was missing, the socket was healing and the child was not in any pain.

A periapical radiograph confirmed loss of 51 but showed an unusual radiopacity (Fig. 1). I later recalled receiving from my children's primary school a warning to parents about the risks of swallowing small 'ball magnets'. An anterior occlusal radiograph confirmed that the radiopacity remained *in situ*, and therefore must be a foreign body and not artefactual. I referred the child to hospital, including both radiographic images. They were seen in the Paediatric A&E Department at Royal Manchester Children's Hospital where the foreign bodies were removed in A&E with the help of a head light, crocodile forceps and an angled soft-ended ball probe while the child was held by his mother in an upright position. Resistance was felt while pulling at the foreign bodies, suggesting nasal adhesions or that they were magnetic. Two ball magnets were retrieved, one from each nostril from either side on the nasal septum. They had been there so long that they had corroded, explaining the irregular appearance of their lateral surfaces on the radiographs. They appeared to have caused a small nasal septal perforation. The child's recovery has been uneventful. Their mother still has no idea when these were inserted into the nose and the child had never displayed any symptoms that might have indicated something was wrong. The mother was grateful for their discovery and removal.

The NHS called for a ban on ball magnets as they have been known to cause severe health problems if ingested. They can pinch intestinal tissues, cutting off the blood supply and tearing tissue. The NHS issued a patient safety alert after around 65 children over a three-year period were admitted for urgent surgery after swallowing magnets.[1] A UK-wide study of 11 major trauma centres found 51% of children admitted following swallowing such magnets required surgery to remove them, with most of these undergoing extensive laparotomies to manage injuries, intestinal perforations and life-threatening bowel twists.[2]

In our case, the magnets were found fortuitously and might otherwise have been left undetected. It is feasible that, if left, they could have produced a larger septal perforation, or been dislodged and ingested, leading to the severe complications described above.

Fig. 1 A periapical radiograph confirmed loss of 51 but showed an unusual radiopacity

More advice on ball magnet safety can be found at: http://www.gov.uk/government/news/opss-raises-awareness-on-magnets-safety.

*R. Pridding, H. Mahdi, K. Horner, Manchester, UK*


### References

1. NHS. Dangers of children swallowing magnets prompts NHS call for ban. 2021. Available at: https://www.england.nhs.uk/2021/05/dangers-of-children-swallowing-magnets-prompts-nhs-call-for-ban/ (accessed June 2022).
2. NHS Cambridge University Hospitals NHS Foundation Trust. Fresh warning on dangers of swallowing mini toy magnets. 2021. Available at: https://www.cuh.nhs.uk/news/fresh-warning-on-dangers-of-swallowing-mini-toy-magnets/ (accessed June 2022).

https://doi.org/10.1038/s41415-022-4410-8


## Anaesthesia and sedation

### Sedation and HIV medication

Sir, as we are aware, many patients are dentally anxious and undergo treatment under intravenous sedation using midazolam. What may be less common knowledge is that numerous drugs used in the management of HIV interact with midazolam.

Curative treatment of HIV with antiretroviral therapy is currently not yet possible; however, drug regimens known as combined antiretroviral therapy aim to reduce morbidity and transmission of disease, whilst increasing survival. A combination of drugs are used, commonly two or three, which are from at least two different drug classes.[1]

Classes of drugs used in the management of HIV include:

- Nucleotide reverse transcriptase inhibitors (NRTI)
- Non-nucleotide reverse transcriptase inhibitors (NNRTI)
- Integrase strand transfer inhibitors (INSTI)
- Protease inhibitors (PI)
- Fusion inhibitors (FI)
- Post-attachment inhibitors
- Pharmacokinetic enhancers
- Integrase inhibitors
- CCR5 antagonists.[1,2]

Saquinavir is a protease inhibitor and a study found that the clearance of intravenous midazolam was reduced by 56% in patients taking this drug. Furthermore, the elimination half-life was increased from 4.1 to 9.5 hours.[3] Hence, sedation is