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Technique to Prevent Misting Spectacles on Wearing Mask

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Abstract: ***Person wearing spectacle is facing additional issue with already existing pandemic .The issue of misting glasses of spectacle was never before existed other than faced by bike riders while taking ride in rain on their helmet glasses. Due to misting issue people are not able to do their regular activities and they are not allowed to remove mask as well even worse issues like accidents while riding and the breathing problems since they have to struggle for exhaling air .The probable solutions to overcome same issue are discussed in a brief manner since, no one has idea how long will the pandemic will stay and misting issue too .The below techniques are effective and easy with the cheap cost, and can be adopted by anyone from child to old person (no age-restriction) .***

Keywords: Mask, Spectacle, Soapwater, Misting, Glasses, Pandemic

I. INTRODUCTION

World Health Organization (WHO) has recommended wearing face masks by general public as a preventive measure against Coronavirus Disease 2019 (COVID-19) . However, wearing a mask may cause fogging of spectacle glasses. Lack of airtight fitting between the upper border of mask and face results in exhaled air traveling in an upward direction. Contact between warmer exhaled air and cooler spectacle glasses results in condensation and formation of tiny water droplets which scatter the light, reduce visual acuity, and adversely affect overall vision. Surgeons have a long experience in dealing with this problem; we share some of our time-tested solutions on this issue of contemporary significance.

II. DESCRIPTION

The face mask directs much of the exhaled air upwards where it gets into contact with the spectacle lenses. The misting occurs from the warm water vapour content condensing on the cooler surface of the lens, and forming tiny droplets that scatter the light and reduce the ability of the lens to transmit contrast.1 The droplets form because of the inherent surface tension between the water molecules. Washing the spectacles with soapy water leaves behind a thin surfactant film that reduces this surface tension and causes the water molecules to spread out evenly into a transparent layer[2]. This ‘surfactant effect’ is widely utilised to prevent misting of surfaces in many everyday situations. As the pandemic effect is growing day by day , it became the routine of individual to wear a mask so it became difficult to the ones who are wearing spectacles along with the mask[1]. The spectacles misting issue is increased due to this scenario. We have made some optimal ,convenient ,easily available ,pocket friendly solutions to overcome this genuine issue of blurred vision due to mist formation on spectacle glasses as a result of heavy mask usage.

These ideas can be classified in to:

1) Cross tying of mask for maintaining proper gap between mask and spectacles , as shown in Fig.1

Fig. 1 Example of maintaining gap between mask and spectacles

From Fig.1, The one should wear a mask in such a way that the exhaled air by person will have minimum contact on the surface of glasses of spectacles which restricts it from forming mist on glass surface[3].

2) Use of soap water to clear glass surface , for longer duration, as shown in Fig.2

Fig.2 Combination of soap, water and spectacles.

Immediately before wearing a face mask, wash the spectacles with soapy water and shake off the excess.

Fig.3 soap applied over glass surface and kept for sometime .

Then, let the spectacles air dry or gently dry off the lenses with a soft tissue before putting them back on. Now the spectacle lenses should not mist up when the face mask is worn, as shown in Fig.4.

Fig.4 wiping glasses with clean piece of tissue paper.

III. WORKING

Since the requirement of soapwater solution to overcome the issue of misting it needs to be stored and for its storage purpose we have came up with cheap and optimal solution of container. It can be done by following below steps .

1) *Step 1:* Mix the soap or detergent with water to make the soap solution
2) *Step 2:* Try to keep this solution a bit viscous
3) *Step 3:* Shake well the above solution and ensure that it is uniformly distributed
4) *Step 4:* Now add this solution in a pocket spray container and ensure that no leakage is there for container and no outflow of liquid.

As shown in Fig.5 and Fig.6

Fig.5 Empty pocket spray container for Soapwater solution Fig.6 Container skeleton

IV. CONCLUSION

With the first method we are trying to minimize the effect of misting and forming droplets over the surface of glasses of spectacle, for reducing the blurred vision issue and make one comfortable while wearing mask. By adopting the technique of cross tying of a mask in certain specified way. (which act as preventive measure to avoid misting issue)

In the second method we have discussed the post misting scenario. This can be controlled by soapwater solution. The container used for the storage purpose of soapwater solution is handy for frequent use and cheap by price and also portable. (acting as cure to misting problem).

REFERENCES

[1] WHO: Coronavirus disease (COVID-19) advice for the public. Available from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-forpublic?gclid=EAIaIQobChMIzOvM9bbM7AIVgQsrCh1fdg3NEAAYASADEgKJo_D_BwE

[2] Bhardwaj A, Sharma C, Rajan MB (2020) Simple solutions for fogging of spectacles on wearing surgical masks. J Am Acad Dermatol. 10.1016/j.jaad.2020.08.041 [PMC free article] [PubMed]

[3] Margrain TH, Owen C. The misting characteristics of spectacle lenses. Ophthalmic Physiol Opt. 1996;16(2):108–114. doi: 10.1046/j.1475-1313.1996.95000232.x. [PubMed] [CrossRef] [Google Scholar]

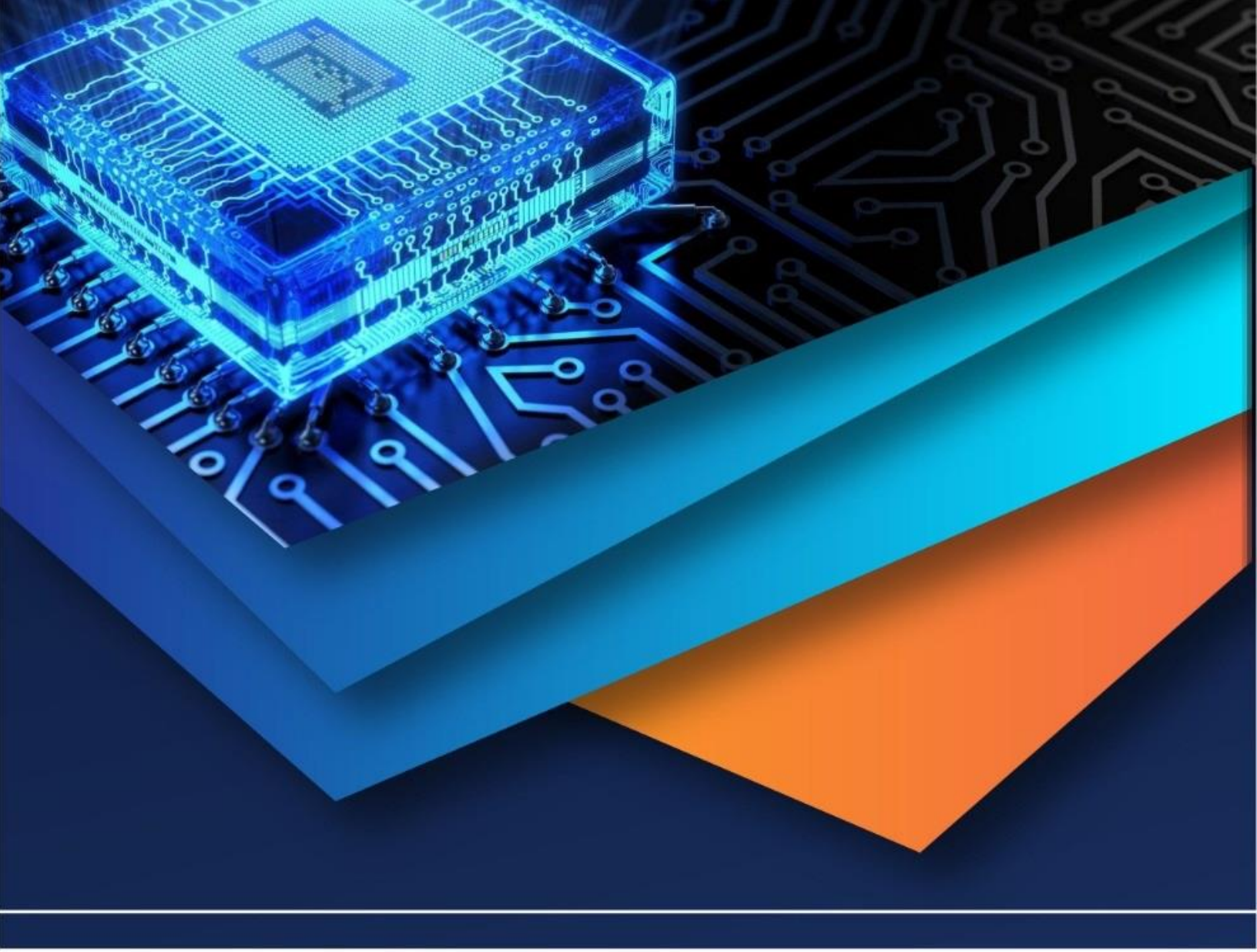
[4] Pandey K, Vig S, Ratre B, Gupta N. Use of Sterillium on protective goggles for anti-fogging during donning for care of COVID-19 patients: a novel technique. Turk J Anaesthesiol Reanim. 2020;48(4):344– 345. doi: 10.5152/TJAR.2020.682. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[5] Crebolder JM, Sloan RB. Determining the effects of eyewear fogging on visual task performance. Appl Ergon. 2004;35(4):371–381. doi: 10.1016/j.apergo.2004.02.005. [PubMed] [CrossRef] [Google Scholar]

[6] Kumar A, Qureshi OA, Arora R, Kumar S, Jameel J, Khan R. Comparison of three low-cost techniques to control fogging of sealed eyewear in a simulated operating room environment: a preliminary analysis. J Clin Orthop Trauma. 2020;11(Suppl 5):S696–S699. doi: 10.1016/j.jcot.2020.07.009. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[7] Duran IR, Laroche G. Current trends, challenges, and perspectives of anti-fogging technology: surface and material design, fabrication strategies, and beyond. Prog Mater Sci. 2019;99:106e186. doi: 10.1016/j.pmatsci.2018.09.001. [CrossRef] [Google Scholar]

[8] Kyle J, editor. Pye's Surgical Handicraft. 20. Bristol: John Wright and Sons Ltd.; 1977. [Google Scholar]



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