

THE EFFECT OF RESIDUAL FREE CHLORINE LEVELS  
ON EYE IRRITATION COMPLAINTS IN VISITORS  
KENJERAN WATERPARK SWIMMING POOL SURABAYA IN 2024

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**ABSTRACT**

The quality of pool water is a crucial factor that needs to be managed well to prevent the spread of diseases. Therefore, disinfection processes using chlorine are conducted. Excessive levels of residual free chlorine can cause complaints of eye irritation. This study aims to determine the influence of residual free chlorine levels on complaints of eye irritation among visitors of the Waterpark Kenjeran Swimming Pool in Surabaya.

This study is an analytical observational study with a cross-sectional design. The research sample was obtained using accidental sampling technique from the population of all swimming visitors, totaling 97 respondents. Adult pool water samples were taken at two times, before and after chlorine treatment, and analyzed in the laboratory. Variables studied include residual free chlorine, pH, complaints of eye irritation, and swimming duration. Data analysis was conducted using Spearman correlation test.

The results showed that the average residual free chlorine content before chlorine was 0.43 mg/l and after chlorine was 1.85 mg/l. The average pH measurement before chlorine was obtained 7.3 and after chlorine was obtained 6.9. Of the 97 respondents who experienced complaints as many as 60 people (62%) and no complaints 37 people (38%).

The conclusion of this study showed that there was an effect of residual free chlorine levels on eye irritation complaints ( $P=0.002$ ) and no effect of swimming time on eye irritation complaints ( $P=0.114$ ). It is recommended to conduct regular checks on the quality of swimming pool water, provide the right dose of chlorine, and use swimming goggles.

Keywords : Swimming Pool, Residual Chlorine, Eye Irritation Complaints  
Bibliography : 34 (26 journals, 6 books, 2 regulation)

PENGARUH KADAR SISA KHLOR BEBAS  
TERHADAP KELUHAN IRITASI MATA PADA PENGUNJUNG  
KOLAM RENANG WATERPARK KENJERAN SURABAYA TAHUN 2024

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**ABSTRAK**

Kualitas air kolam renang adalah unsur penting yang perlu dikelola dengan baik untuk mencegah timbulnya penularan penyakit. Sehingga dilakukan proses desinfeksi dengan menggunakan klorin. Kadar sisa klor bebas yang berlebihan dapat menimbulkan keluhan iritasi mata. Penelitian ini bertujuan untuk mengetahui pengaruh kadar sisa klor bebas terhadap keluhan iritasi mata pada pengunjung Kolam Renang *Waterpark* Kenjeran Surabaya.

Penelitian ini adalah studi observasional analitik dengan desain *cross sectional*. Sampel penelitian diambil menggunakan teknik *accidental sampling* dari populasi seluruh pengunjung yang berenang, dengan jumlah sampel sebanyak 97 responden. Sampel air kolam renang dewasa diambil pada dua waktu, yaitu sebelum dan sesudah diberikan klorin, kemudian dianalisis di laboratorium. Variabel yang diteliti meliputi sisa klor bebas, pH, keluhan iritasi mata serta lama waktu berenang. Analisis data dilakukan menggunakan uji korelasi spearman.

Hasil penelitian menunjukkan bahwa rata – rata kadar sisa klor bebas sebelum diberikan klorin diperoleh 0,43 mg/l dan sesudah diberikan klorin diperoleh 1,85 mg/l. Rata – rata pengukuran pH sebelum diberikan klorin diperoleh 7,3 dan sesudah diberikan klorin diperoleh 6,9. Dari 97 responden yang mengalami keluhan sebanyak 60 orang (62%) dan tidak ada keluhan 37 orang (38%).

Kesimpulan dari penelitian ini menunjukkan adanya pengaruh kadar sisa klor bebas terhadap keluhan iritasi mata ( $P=0,002$ ) dan tidak ada pengaruh lama waktu berenang terhadap keluhan iritasi mata ( $P=0,114$ ). Disarankan untuk melakukan pemeriksaan rutin terhadap kualitas air kolam renang, memberikan dosis kaporit yang sesuai, dan menggunakan kacamata berenang.

Kata kunci : Kolam Renang , Sisa Klor, Keluhan Iritasi Mata  
Daftar Pustaka : 34 (26 jurnal, 6 Buku, 2 Peraturan)