

PENGARUH PERTUNJUKAN BERENANG PADA GAJAH ASIA (*Elephas maximus*) TERHADAP KADAR HORMON KORTISOL DAN KORELASI HORMON PROGESTERON, FREKUENSI RESPIRASI, DAN RASIO HETEROFIL/LIMFOSIT (H/L) DI A'FAMOSA SAFARI WONDERLAND MELAKA MALAYSIA

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Gajah Asia (*Elephas maximus*) merupakan spesies megafauna yang memiliki nilai ekologis dan konservasi tinggi, tetapi keberadaannya di lembaga konservasi kerap menghadapi tantangan kesejahteraan akibat interaksi rutin dengan manusia. Pertunjukan ini dapat berfungsi sebagai *environmental enrichment*, tetapi berpotensi menimbulkan stres fisiologis. Stres akan meningkatkan kadar kortisol yang dapat memengaruhi keseimbangan hormonal reproduksi, fisiologis dan gambaran darah bila terjadi berkepanjangan. Penelitian ini bertujuan untuk menganalisis pengaruh pertunjukan berenang terhadap kadar hormon kortisol dan korelasi dengan hormon progesteron, frekuensi respirasi, dan rasio heterofil/limfosit (H/L) pada gajah Asia betina di A'Famosa Safari Wonderland, Melaka, Malaysia. Penelitian ini melibatkan tiga ekor gajah Asia (*Elephas maximus*) betina dan menggunakan sampel darah yang dikumpulkan pada enam periode waktu, meliputi saat di kandang sebelum pertunjukan, sebelum mandi, sebelum dan setelah masuk kolam, di kandang pasca berenang, dan empat jam setelah di kandang. Pengukuran kadar hormon kortisol dan progesteron menggunakan metode ELISA. Data kadar kortisol dan korelasi dengan progesteron, frekuensi respirasi dan rasio (H/L) diuji dengan uji korelasi Pearson. Hasil penelitian menunjukkan hubungan kortisol dengan progesteron sangat lemah, sehingga tidak dapat dijadikan indikator yang konsisten, tetapi kortisol dan frekuensi respirasi berhubungan sedang dan signifikan; peningkatan kortisol cenderung diikuti perubahan frekuensi respirasi. Rasio H/L menunjukkan hubungan paling kuat dan signifikan; rasio ini dapat menjadi indikator hematologi yang relevan terhadap stres fisiologis. Jika dibandingkan dengan sebelum pertunjukan berenang, kadar kortisol gajah menurun setelah proses pertunjukan berenang berlangsung. Berdasarkan hasil penelitian dapat disimpulkan bahwa pertunjukan berenang pada gajah Asia di A'Famosa Safari Wonderland tidak menyebabkan stres kronis.

Kata kunci: ELISA, Gajah Asia, kesejahteraan hewan, kortisol, pertunjukan berenang.

THE EFFECT OF ELEPHANT SWIMMING PERFORMANCE ON CORTISOL AND CORRELATION BETWEEN PROGESTERONE, BREATHING RATE AND HETEROPHIL/LYMPHOCYTE (H/L) RATIO IN A'FAMOSA SAFARI WONDERLAND MELAKA MALAYSIA

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Asian elephants (*Elephas maximus*) are megafauna with high ecological and conservation value, but conservation institutions often face welfare challenges with captive elephants due to visitor interactions. Some performances can serve as environmental enrichment but have the potential to cause physiological stress. Stress can affect reproductive hormonal balance, physiology and blood profile. This study aimed to analyze the effect of three female Asian Elephant swimming performances on cortisol levels and their correlation with progesterone, respiratory rate, and the heterophil/lymphocyte (H/L) ratio in A'Famosa Safari Wonderland, Melaka, Malaysia. Blood samples were collected at six time points: in the enclosure before the performance, before bathing, before and after entering the pool, in the enclosure after swimming, and four hours after returning to enclosure. Cortisol and progesterone levels were measured using the ELISA method. Cortisol levels and their correlation with progesterone, respiratory rate, and the (H/L) ratio were then tested using Pearson correlation test. The correlation between cortisol and progesterone was very weak. However, there was a moderate and significant correlation between cortisol and respiratory rate; increases in cortisol tended to be followed by changes in respiratory rate. The H/L ratio showed the strongest and most significant correlation; this ratio can be a relevant hematological indicator of physiological stress. Cortisol level before and after swimming performance indicates no significant increase. This is a positive indicator from an animal welfare perspective. It could be concluded that swimming performance of Asian elephant at A'Famosa Safari Wonderland doesn't result in chronic stress.

Keywords: animal welfare, Asian Elephant, cortisol ELISA, swimming performance.