Hanaa Mohammed

بسم اللّه الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني

Safaa Mahmoud

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Cairo University

Cairo University
Faculty of Veterinary Medicine
Department of Surgery, Anesthesiology and Radiology

Radiographic evaluation of normal and dysplastic coxofemoral joints in dogs

A thesis presented by

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For Master's Degree in Veterinary Sciences (BVSc)
(Surgery, Anesthesiology and Radiology)

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Abstract

Canine hip dysplasia (CHD) is a developmental, heritable, and multifactorial disorder of the coxofemoral joint, affecting large breed dogs mostly German Shepherds, Labrador Retrievers and Boxers, with associated joint laxity and incongruity that predisposes to osteoarthritis and thus reducing the quality of animal life. Our main objective is to propose a modified FCI (Fédération Cynologique Internationale) scoring system of the canine coxofemoral joint to achieve a selective breeding protocol using parental phenotypically healthy coxofemoral joints based on the standard extended-leg VD radiograph to help reduce the prevalence of CHD among offspring. The study was carried out on 175 Labrador Retrievers and 153 German Shepherds. Investigated populations were classified into normal (grade A), near-normal (grade B), and dysplastic coxofemoral joints (grades C to E) based on the morphometric criteria previously established by the conventional FCI scoring system. Centre-edge (CE) angle, Norberg angle (NA), indices of dorsal acetabular femoral head (AFH) coverage width and area, acetabular index angle, and inclination angle were determined for each group. Data were analyzed for each breed separately. Overall, all radiographic measurements differed significantly ($P<0.0001$) among the 5 tested groups of each breed using ANOVA test. Significant correlations were identified between some of tested variables. Labrador Retrievers with CE-angle $< 27°$, dorsal AFH coverage area index $< 53\%$, dorsal AFH coverage width index $< 52\%$ and/or acetabular index angle $\geq 9°$ may be consistent with CHD and are recommended to be excluded from breeding. German Shepherds with CE-angle $\leq 20.3°$, dorsal AFH coverage width index $\leq 51\%$, and/or dorsal AFH coverage area index $\leq 53\%$ may be consistent with CHD and are recommended to be excluded from breeding. Evaluation of the canine hip joint of Labrador Retrievers and German Shepherds using the modified FCI scoring system during selective breeding protocol is strongly recommended to help reducing the prevalence of the CHD among offspring.

Keywords: FCI score, coxofemoral joint, acetabular femoral head coverage, hip dysplasia, Labradors, German Shepherds.

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Dedication

This thesis is dedicated to my family (Atya, Naema, Mostafa, Mohammed, Abdelrahman), my husband (Ahmed) and his family without their endless love and support I would have never been able to complete my studies.

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