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# EXPERIMENTAL LENGTHENING OF FEMUR USING DISTRACTION OSTEOGENESIS IN DOGS

*Thesis presented by*

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**Abstract**

The present study conducted on 15 dogs. The study aimed to evaluate the usefulness of two locally designed distractors (extramedullary and external distractors) for management of bony deficiencies. The extramedullary distractor was applied on 3 groups of dogs (3 dogs each). They were classified according to the distraction period (5, 10 and 20 days) 1mm/day with fixed time 2 months after the distraction period. The external distractor was applied on 2 groups of dogs (3 dogs each) according to presence or absence of intramedullary nail. The extramedullary distractor achieved osteogenesis with a good vertical height 0.5cm, 1 cm and 2 cm according to the group. Histologically, active bone deposition had been seen at the distracted areas. As the distance of the distraction increases, bone deposition becomes more. The external distractor showed instability and the animals tried to remove it, so displacement of the two fracture segments. The external distraction needs more veterinarian care to prevent additional damage to animal/device.



## *DEDICATION<sup>III</sup>*

*This thesis is dedicated to:*

*My parents,*

*My lovely husband*

*And my son Yamen.*

*Mai A. Abd El Sattar*

*Mai A. Abd El Sattar*



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## List of abbreviations

BMP	: Bone morphogenetic protein
BW	: Body weight
DO	: Distraction osteogenesis
ECM	: Extracellular matrix
FFD	: Focal Film Distance
FGF	: Fibroblast growth factor
GH	: Growth Hormone
H&E	: Hematoxlin and Eosin
IGF	: Insulin-like growth factor
LDCDs	: limb deformity correction devices
mA/s	: miliamber per second
Max	: maximum
mg/kg	: milligram per kilogram
Min	: Minimum
MTC	: Masson Trichrome
n	: Number
NRS	: Numerical rating score
RGB	: Red Green Blue
SD	: standard Deviation
TGF	: Transforming growth factor
VEGF	: Vascular endothelial growth factor



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