

Is being with girls stressful?

Social environment influences hormone levels in male giraffes

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Introduction

Giraffes (*Giraffa camelopardalis giraffa*) live in a fission-fusion social system, characterized by the splitting and reunion of subgroups within a larger social network (1). Adult bulls show a roaming tactic to search for fertile females, whereas younger bulls are often seen in all male groups (2).

But so far little is known on the reproductive behaviour of these animals under natural conditions, especially from the male perspective. Therefore, the aim of the study is to describe the endocrine correlates of male reproductive behaviour and the impact of ecological and social factors in free-ranging male giraffes.



A - class



B/C - class



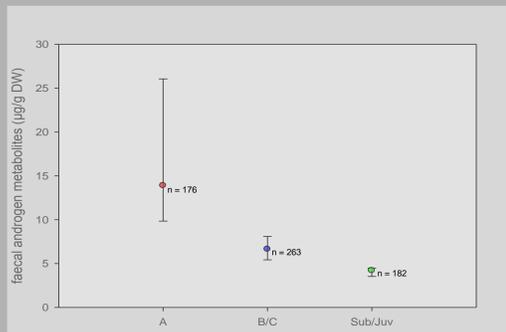
Sub/Juv class

Methods

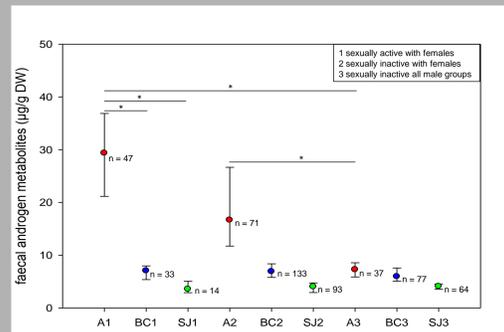
A giraffe population of about 80 individuals (11 adult males, 28 adult females, and 32 juvenile / sub-adult animals) was monitored six days a week from dawn to dusk for a period of 12 months (Nov. 2014 – Oct. 2015).

Giraffes were individually identified by their unique pelage pattern and adult bulls assigned to age classes based on their appearance (A, B, and C), with class A bulls being the oldest and tallest. A total of 790 faecal samples were collected and analysed for faecal androgen (fAM) and glucocorticoid metabolite (fGCM) concentrations.

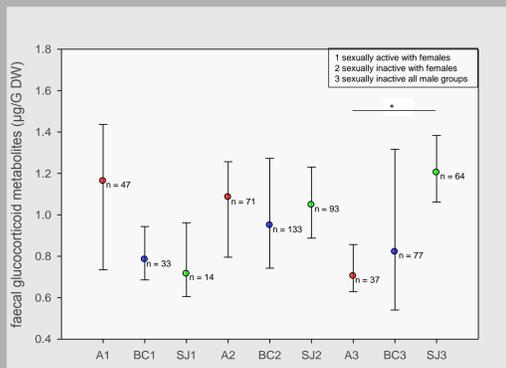
Results



Class A bulls show significantly higher fAM levels compared to younger bulls, with lowest fAM levels found in the juvenile / sub-adult group



Within class A: fAM levels of bulls in all-male groups are significantly lower than when associated with females



- No significant differences in overall fGCM levels could be found between the different age classes.
- Within class A the bulls show a trend for higher fGCM levels when sexually active compared to when associated with an all-male group.
- Juvenile / sub-adult bulls show highest fGCM levels when they are in all-male groups



Sub-adult males



Mixed sex group with class B bull



Multifemale group



Sub-adult multimale group

Conclusion

- Androgen levels in male giraffes are influenced by the social environment the bulls encounter.
- Dominant bulls show increased levels of fAMs during the time the females are receptive, and the bulls are frequently checking their hormonal status and start mate guarding.
- The dominant bulls are also showing increased fGCM levels when they are with females compared to all male groups.
- In contrast, youngest bulls have increased levels of fGCM when in all-male groups, presumably due to an unestablished position within the hierarchy.

Acknowledgement

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References

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