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NUTRITIONAL EPIDEMIOLOGY IN CANINE POPULATION: USING PET DOGS AS AN ANIMAL MODEL FOR STUDYING DIET-DISEASE ASSOCIATIONS

RATIONALE

Open questions in using traditional animal experiments:

- Ethical considerations
- Generalizability of the results to human populations

Applying methods of nutritional epidemiology to analyze the diet-disease relationships in pet dogs is a novel approach which combines some of the advantages of animal and human research:

Strengths in comparison with human epidemiology

- Shorter lifespan → Shorter follow-up times to endpoint, results faster
- Diet tends to be more monotonous → Improved reliability of long-term dietary estimates
- Feeding in owner's control

Strengths in comparison with animal experiments

- Non-invasive, observative studies → Minor ethical problems
- Living conditions shared with humans
- Many human health problems occur spontaneously in pet dogs– e.g. atopic disorders, osteoarthritis, diabetes, epilepsy, overweight, and cancer

DOGRISK PROJECT

- Multidisciplinary project involving veterinary science and human nutritional epidemiology
- Data collected on feeding, living conditions, and diseases of Finnish pet dogs
- Owner-administered internet-based questionnaire now under validation
- 10072 collected answers between December 2009 and April 2015

Feeding data

- Collected separately for puppyhood, youth, and adulthood periods
- Intended to cover the total diet
- 47 feeding frequency questions with dropdown menus for further specifications
- Five frequency options ranging from “never” to “daily or almost daily”.
- Huge variation in size of the dog – no ‘standard meal sizes’ → no inferences on amounts eaten will be made

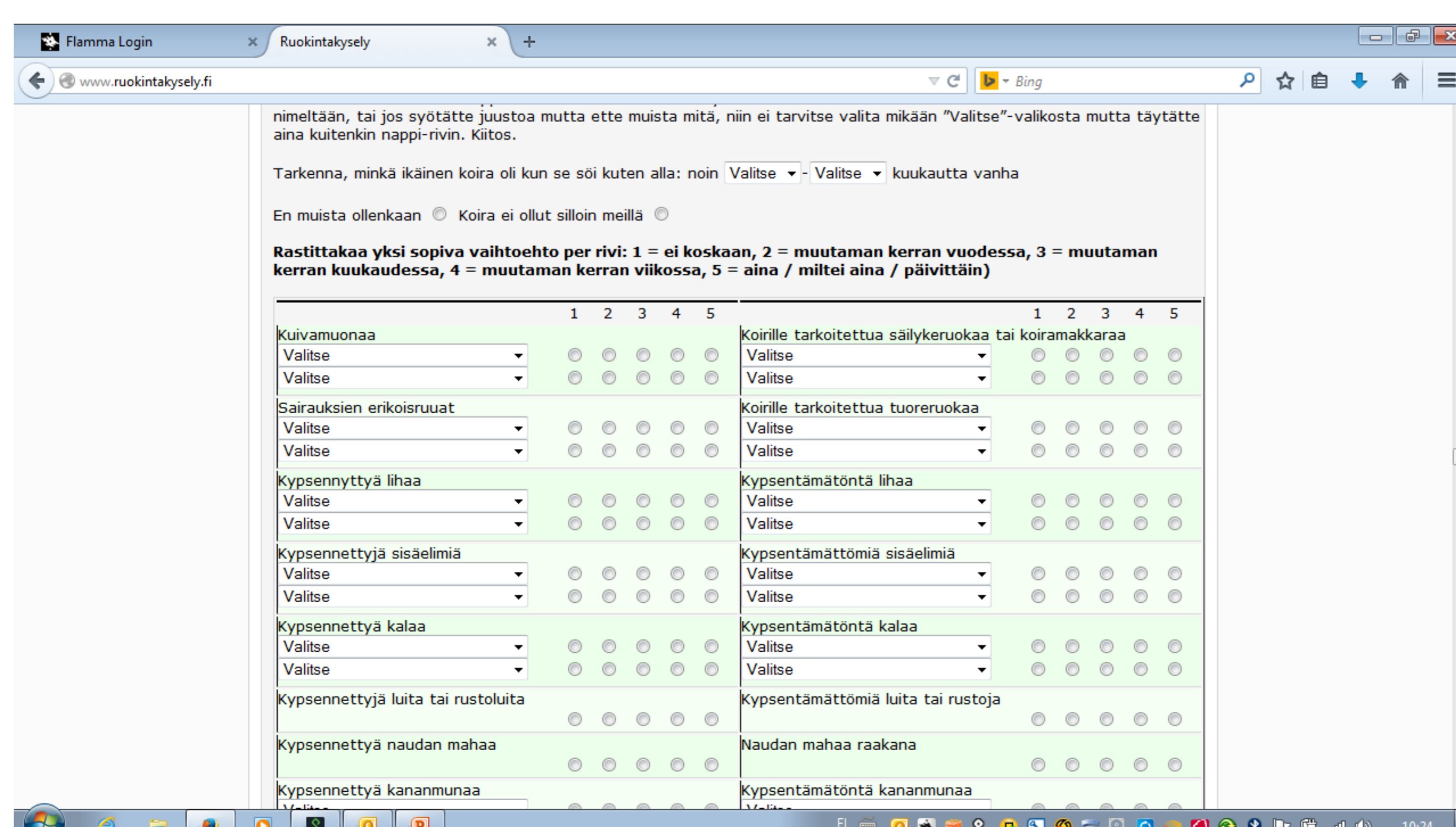
Other data

- Questions on 43 disease conditions, including age at first occurrence, recurrence, and specific diagnosis
- Dog characteristics (e.g. breed), living conditions (e.g. house type, time outdoors), health status of the dog's dam



PERSPECTIVES

- Epidemiological analyses of diet-disease associations: diseases shared with humans
- Testing existing hypotheses
- Generating novel hypotheses to be further tested in dogs and humans
- Analyzing interactions of environmental factors and feeding in relation to disease risks
- Modifying human dietary assessment methods for optimal performance in dogs and other pet species



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