Obesity in Dogs—a *Human Bourne* Disease*

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Abstract The author discusses the role of animals—here of dogs—as "participant observers." He demonstrates the complex relationship of this role to the recent growing of obesity in dogs as a "human bourne" disease and discusses the concept of biophilia (Wilson) for solving the human medical problem by redefining the long relationship of animal and human.

Keywords obesity – obesity in dogs – biophilia – human-animal-relation – animal assisted therapy – mutual participant observation

Fettleibige Hunde – ein Vermächtnis der Mensch-Hund-Beziehung

Abstract Der Autor betrachtet die Rolle von Tieren als „teilnehmende Beobachter" und zeigt am Beispiel der Hunde auf, wie deren Verhältnis zum Menschen die zunehmende Fettsucht bei Hunde aus dieser Beziehung hergeleitet werden könnte. Diese komplexe Beziehung wird unter verschiedenen Gesichtspunkten beleuchtet. Lösungswege für das Problem beider werden in der Neubestimmung der Mensch-Hund-Beziehung gesehen.

Schlagwörter Adipositas – Adipositas bei Hunden – *Biophilie* (nach Wilson) – Mensch-Tier-Beziehung – teilnehmende Beobachtung – hundegestützte Therapie

French Abstract (Résumé) see p. 159.

Introduction

Animals represent an important role in social lifestyle, wellbeing and health of humans. In the last decades, the number of obese dogs is increasing proportionally with human obesity. Currently, approximately every 5th dog has obesity. There are almost 500 million registered dogs in world. "There is no such thing as a free dinner"—famous saying can be successfully applied to human—animal nourishment. Dating from our anthropo-zoonotic introductions, animals and humans in search for food developed an evolutional connection. If we accept obese dogs and other pets as normal, we accept obesity as normal. Although, genetics presents a major role in obesity forming a skeleton for the lifestyle of phenotype habits; relationship forms the final curves: in case of a particular symbiosis of humans and dogs, relationship between our kitchen tables, groceries and our emotions. A cookie as a reward in our pocket when taking our dog for a walk is a "key" that connects us. This same cookie was a "wild card" that brought dogs close to humans many years ago in form of a food leftovers or carcasses. Serving different tasks the dog plays a significant role in human social life: from a house pet, a child replacement, a nature's *einblick* in leading a simple lifestyle, to being a truthful psychologist, empowering one's life style. Nobody knows if Malinowski would agree, but dogs are "participant observers" of our lives. Nevertheless, our friendship, our food, leads them being ill-health-carrying obesity, and obesity related risk factors. Over eating can be a cross-species cultural disorder. Society uses food resources to cause dogs' obesity: an epi-zoonotic disease that animals get from humans, a "reverse zoonotic transmission." In this equation, a Human is a "vector" in obesity of dogs. If we remove the human a dog becomes "just" an animal. Other than physiological increase of fat, sheltering seasonal food intake in times preceding winter or opportunistically eating large meals, in wild life, free range, dogs-animals have no obesity. The epi-zoonotic problem of animal obesity is overlooked because it is not a direct threat to public health. But is this true?

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Animals are everywhere: from paintings in Chauvet cave in France 30,000 years ago to modern art, fables, medicine, folklore, in food and dreams. They fill our personalities describing something close, something with deep imprint. In one study, animals involve up to 57% of dreams of four-year-old children (Melson 1995). But for sure many children nowadays have a different dream, dream of not being overweight—of being normal. Animals are our "undeveloped" bio-neighbors and play an important role in social and historical development of human kind. We shared the same biological laws of causa and destiny, shared the same food, periods of hunger, same territory. Now, in Anthropocene, we share obesity—*adipositas*. The aim of this paper is not just showing that humans make animals obese but to try answering the following research questions:

What is the role of animals on an example of dogs as "participant observers" in complexity of obesity—a "human bourne" disease? Can animals help reduce obesity? Can we use animal assisted therapy as a long term cognitive-behavioral method successfully in reducing obesity and obesity related diseases. Could adding a non-species medium and forming a collaborative human - dog bond empower life style change and reduce overweight? Can animals make us move?

Role of animals in social wellbeing and health

Many facts could emphasize the role of animals in history of medicine. Ethnomedicine mostly focuses on herbs, and apothecary skills that come from plants. Animals are probably neglected part of ethnomedicine. Ethnological facts point the communion of domesticated animals and peasants sharing the same habitation. Their broader effect on human wellbeing is unmeasurable. Animals were used in many fields of medicine: from magical use of flesh, bones and blood, fat for making remedies, using birds as protection against parasites and insects, to modern genetics research, translational research and assisted animal therapy. If cats, dogs, monkeys, rabbits etc. did not give their life to medicine, today there would be no cure for many diseases such as AIDS, no vaccines for most of contagious pandemics.

In this paper I will focus on dogs, our first domesticated animal, and its use in assisted animal therapy as a possible method for treatment of obesity. Also human—dog "mirroring" relationship is a good example, of obesity and obesity related diseases being a cross species problem that is increasing proportionally. Approximately every 5th dog has obesity (Zoran 2010). Accepting obese dogs as normal, we accept obesity as normal. The equation is simple: pets give us love we return the favor by giving them food. Our relationship transformed from existential to emotional. Many dog owners make a simple mistake by thinking that giving food is taking care. With more "care" there is predisposition for obesity. The bond between human and dog is based on trust, there is no stigmatization or premeditation. Dogs reduce stress, develop empathy, communication with other people (pet owners), presence of pets reduces loneliness and isolation. The feeling of responsibility, investing necessary effort in a dog-human relationship is a tool for raising the awareness for one's health. Loyalty and affection of dogs is a source of motivation and could empower the will moment and one's determination in life style and diet moderation. Behavior of dogs towards humans is by its *habitus* simple, apolar and direct. Persons with reduced self-confidence accept more easily this type of communication. Dog is an active animal, it's always "action" oriented on walks and movement that promotes physical activity. WHO and CDC give instructions for persons with obesity to take more regular physical activity along diet change.[1] Cardiologic research shows that for keeping the right cardiovascular function and prevention of a heart attack very day fast pace walk of at least 30 min is needed (3 km per day)[2]. From psycho-social perspective dogs could affect one's life style change in a proactive way including long term eating habit change.

An evolutionary connection—a "cookie" in a pocket

It is difficult to predict the past and how the "human-animal" evolved side by side with the evolution of "other" animals. Humans were probably a minority among other animals in nature. But we know that the first animal was domesticated 10–15.000 years BC. From that period dogs and humans in search for food developed an evolutionary connection.[3] Dogs helped us find and catch our food[4]—food that we would consume together. Today a modern dog of a contemporary human with solid standard living in a developed world is still allowed to be close to our

food. We are sharing the same ingredients, putting food of the table, taking a "cookie" as a reward in our pocket when taking a dog for a walk. The same cookie was a "wild card" which brought dogs closer to human's years ago in form of a food leftovers or carcasses. Unfortunately for the dog, our lifestyle and eating habits have changed leading to mutual overweight and health problems.

In the last 8000 years food animals were domesticated and procreation of food, early farming and agriculture was on its way. We feed them, so that they could feed us. Man produced food by gaining weight to animals—first predisposition for *adipositas*—a "human bourne" disease. The "usual suspects" for obesity are just a couple of domesticated animals: a pig, a cow, a horse, and a chicken. Majority of high value protein and fat in the world comes from these animals onto our kitchen tables. Second link of chain towards the development of wide spread obesity was the development of modern restaurants, oven kitchens, public canteens around 18th century. The third link happened 1810, with the invention of cans and hermetic bottle invention, followed by pasteurization in 1864. In 1940 vacuum storage was invented. Food could be stored and eaten at any time, any place.

Alongside food industry, first pet food was created in second half of 19th century.[5] After the end of World War I canned horse meat was sold as pet food[6] and the formation of pet food industry in 1964 started marketing pet food as "better" food for animals than human food.[7] All food was divided to "human food" and "animal food," something that today is common and in fact accepted by all including the terms as human grade food and feed.

When animal transform into human is uncertain but we can state how humans stand in relations to "other" animals by measuring trophic level. Trophic level is a rank in food chain used in biology. Trophic level has a scale from 1–5. "One" being a primary producer such as plants and "five" being a predator that only eats meat for example a tiger. In a research shown in "Proceedings of the Natural Academy of Sciences" (Bonhommeau *et al*. 2013) human trophic level score is 2.21 which equals pigs or anchovy fish. We are adaptive omnivores, a link in favor of gaining weight.

Different faces of obesity

To understand present, we should try to perceive our ancestral past. Do animals eat too much? Animals are very "traditional" beings; they know what their

"Participant observation" (unknown source)

food is; they like to eat "local" specialties and "seasonal" ingredients they do not rethink or eat different than their parents, generation before. Contemporary "sitting" man is changing feeding habits fast including habits of his animals. I called obesity a *human bourne* disease, the explanation is borrowed from *vector bourne diseases*, whereas in obesity the vector is human. In nature there is no obesity. There is seasonal storing of food with animals that have a winter sleep or a locational overweight such as polar bears or whales. But the fat in these cases has function and is not an ill-health state. With evolution of human, nature started gaining weight, in broader view, we are making world obese with massive CO_2 production, waste production and of course making overweight children and cross species-animals. Obesity is created by humans, we cannot find obesity in deep ice, prehistorical sites or hidden in tropic plants.

On a different perspective obesity is an interrelationship between hunger, animals, nutrition and disease. From biological point of view it's a cross species disease, ethically raising moral questions, towards over use and farming methods of food animals. Super sizing of animals is called modern farming. Ancient romans would stuff animals, for example dormouse in special amphorae and use them as cuisine specialty. A cow or a pig in nature is rarely obese; in farming environment it is obese as soon as possible. Obesity and overweight are "cultural" diseases, involving customs, cuisine, traditional habits in contrast and in conflict to modern urban life style. It is a diffuse ill health change contagiously involving all layers of society, rarely ending in long term regeneration (KATZ 2008). Obesity is one of elemental addictions easily over satisfying social, cultural and nutritional needs. It is the most expensive public health concern. Nations "invest" in increasing meat consumption trying to elevate their social status. Obesity related diseases, diabetes, heart diseases present unsustainable costs for medical systems.

It is very easy to accept obesity: Today a child can say: "obesity is a tradition in my family" seeing an overweight grandfather, father, and itself, justifying potential health problem. Genes present a major role in obesity, building basis for phenotype habits. Habits are formed almost at birth. From breastfeeding to 25–30 years of growing up into independent individual is a long way. And it should include knowledge of preparing ingredients—cooking groceries.

But food industry only 60, 70 years ago managed to train their customers that it's better to buy their food than to complicate and loose time cooking. A grown man does not need to cook or know how to cook. Why would parents lose time and energy to cook to their children? How can an obese child lose weight when their parents do not know how to cook? Using knowledge in preparing food, shaping a habit, learning about food are all part of a self-cultivating process of building energy and bricks for one's body.

Kitchen is starting to lose its social purpose and becomes a museum, a place where once social interaction was taking place, family union, long talks, beside pots and oven, around food. Obesity starts at young age: watching cartoons, lying around with smartphones and tablets. Every parent can catch itself telling its child to calm down, sit, be still, do not run around etc. … making a habit of not being physically active, sitting in a chair, and making behavioral predisposition for future obesity. If we take in account that the same number of fat cells is defined in childhood, adolescence and is constant throughout adult age (SPALDING *et al*. 2008: 783–787) our epigenetic system is on full work load, trying to compensate our fast paced cultural evolution with much slower biological (CAVLLI-SFORZA & FELDMAN 1973).

Assisted animal therapy—mutual cooking

There are many unsuccessful therapies for obesity, from pills, surgery, to psychotherapy and exercise. The forces of genes and environmental influence are too strong. My idea of implementing mutual cooking as part of assisted animal therapy and using our "inclusion with nature"—in the sense of *biophilia* (WILSON 1984)—in treatment of obesity and obesity related disease could form a long term behavioral change combining adequate nutrition and active physical movement (KAPLAN *et al*. 1996: 793ff), learning how to prepare right meal for your dog, buying and cooking ingredients. Ingredients are the same for human and dog. There are no "other" ingredients for dog food! A patient gets a habit of preparing fresh food developing emotional synchronization. Something that we have done thousands of years, we shared the same food with our first domesticated animal friend. Dog owners come

from all life style layers and all social status, and the method of matchmaking a dog for the specific life style of obese patient is easy. There are currently more than 300 species of dogs. The advantage in using assisted animal therapy with dogs is that estimated lifespan of dogs is around nine years. Enough time to form new habits and to change a part of patient life style, it's a continuous care. In this type of animal therapy, we are adapting to our dogs' needs, we do not change one's life style as this often proves to be too much of an "artificial" intervention and ends in returning to old vices. Patients focus on cooking for our dog and walking it regularly. By creating these habits, we take part, and change in a positive way. We buy fresh food, prepare, and cook a healthy meal; we take three times a day minimum of 30 min per walk. Animal therapy is expanding, offering interdisciplinary results in medical use (Philip Tedeschi *et al*. 2005).

Experience a human animal life style change

How I came to an idea of assisted animal therapy in overweight and obesity? I will show on an example of my family, the influence of dog in mutual nutrition and cooking habits. Meet my family: Enza, a 14year old dog, Juraj my father, 82 years old, and my child, Bruna, 15 months old. Enza, was really part of our family, when I got her she was two months old and I was studying veterinary medicine. I knew I was going to prepare and cook her meals and that the ingredients of dog food and human food are the same. I knew what the nutritional needs for dogs were, at least I had the literature, a big sized, 2000 pages book written in small font, called "small animals clinical nutrition." We usually "spin" 20–30 ingredients in our kitchen throughout the year and make variable meals out of it like many other families. Nutritional needs had to be satisfied: fresh whole integral ingredients, low on salt, low sugar, low on spices, moderate protein, digestible-porridge like consistency, low sodium, potassium and so on. So we cooked for our dog for the last 14 years, enjoying the mutual process.

Next in my family is my father. Couple of years ago he ended in hospital, kidney *insufficiency*, a condition that needed special diet. When I visited him in the hospital I asked what do they give you to eat, he said: "I don't know some unidentified kind of meat and artificial potato". I knew I had to cook for him, I had a medical background and informed myself about kidney disease nutrition, and to my surprise it was the exact food that I was preparing for my dog for years. Low on sodium, low potassium, fresh, whole integral ingredients etc. …

And the newest member of my family, Bruna, is a 15-month old daughter. When time came to introduce food in her life, we believed these readymade baby food is not the best choice for babies so we decided to cook for her since we cook for ourselves. We read a lot about baby nutrition, and to our surprise it was the exact ingredients that I was cooking for my dog and my father, and now for my baby. Low on sodium low on potassium, easily digestible, fresh, whole integral ingredients etc. … In my family the habit of cooking with fresh integral ingredients so far leads to normal weight and probably a healthier life.

There is no one sided categorical answer to a question asked by many dog owners—what food to give? The love for dogs is expressed through food and the same domestication chemistry, but the answer is confusing and associates on many "right" diets and lose-weight programed meals sold to desperate overweight people. Dog owners are confused and almost always end in buying dehydrated or canned readymade dog food. I would say to dog owners give the same ingredients you give to your child or your father. All ingredients are the same, only the method of preparing differentiates. Dog food labels show the same ingredients: meat, vegetables and other 10–15 ingredients that are served in restaurants, kitchens, and sold on every market place. Buy learning how to prepare fresh meal for a dog the learning process can spread to family members. Usually in comparison to our wrong food habits and eating mistakes, we copy them to our dogs, and other companion animals using the same logic. If I am eating fast food and don't have time to cook why should I cook for my dog and go to a market place to buy fresh food.

Conclusions

Dogs can be a successful pilot research project of assisted animal therapy in adding innovation to cognitive—behavioral treatment of overweight and obesity related diseases. By sharing the same healthy ingredients and mutual cooking methods patients could transform their life style to healthier and active habits. This method could be included with many different fields working in reducing

number one public health problem—overweight and obesity. Obesity is a cross species problem that could be reduced with the help of assisted animal therapy.

Notes

1. (http://www.who.int/mediacentre/factsheets/fs311/en/) http://www.cdc.gov/physicalactivity/basics/index.htm.
2. European guidelines on cardiovascular disease prevention in clinical practice. 2007. Forth joint task force of the European Society of Cardiology and other societies on cardiovascular disease prevention in clinical practice (constituted by representatives of nine societies and by invited experts). Executive summary. *Eur J Cardiovasc Prev Rehabil* 2007. Suppl. 2 E, 1–40 (Sept. 14).
3. Humans have specialized brain cells for recognizing animal life. Researchers (Christof Koch, Allen Institute for Brain Science, Seattle) discovered neurons in the amygdala, an area involved in emotions that respond preferentially to animal images, producing powerful emotional reactions to animals.
4. Scientific discoveries led by psychologist Michael Tomasello of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, and Csányi in Budapest independently showed how family dogs can follow human pointing gestures to find hidden food.
5. Spratt's Patent Limited" made up of wheat meals, vegetables and meat. Production started 1890's.
6. Ken-L Ration brand of dog food.
7. In 1975 there were more than 1,500 dog foods on the market.

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