

## Commentary

# The problem of biology and anti-aging: A critical commentary

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## Introduction

This year saw more anti-aging researchers talk about providing a ‘cure’ for aging in the next five years. Recently, this has been taken up by a number of people who could be called “anti-aging pioneers” [1]. One of the fundamental continuities of this trend of thought, is that aging is seen as a ‘decaying disease’ and the perception given is that only anti-aging science can ‘cure’ it as a medical “problem” by its reversal. Older people are singled out for ‘cure’ of their aging because the human body changes shape over time [2].

What is often failed to remember is that aging is not a problem but a biographical success story with older people offering a rich tapestry of social experiences derived from their positive aging identity that can shed light on the world in which we live: share important lessons to other groups across the life-course about history, culture and events and what it actually means to be an ‘older person’.

Hence, aging is not a universal disease and a disease is not aging. There is a disease called ageism that needs eliminating from societal attitudes, assumptions, policies and some researchers. Yet of all divisions in human society, those based on age appear the most natural and the least subject to historical change. The cycle of infancy, youth, maturity and decline seems an inexorable process. Worse still for anti aging researchers old age is shamefully seen like head lice in children and venereal disease in their older siblings. How do we problematize this? Gerontology provides some answers and more questions.

## The importance of gerontology

‘Gerontology’ is a broad discipline which encompasses psychological, biological and social analyses of aging [1]. Since the beginning of the twentieth century, the ‘bio-medical’ study of aging consisting of biological and psychological explanatory frameworks has dominated the disciplinary development of gerontology. There are important implications here for how aging is viewed not just by bio-medical models of aging but for how society and its the arrangement of political and economic structures that create and sanction social policies grounded in such knowledge bases.

Such knowledge bases are focused on: one, ‘biological aging’ which refers to the internal and external physiological changes that take place in the individual body; two, ‘psychological aging’ is understood as the developmental changes in mental functioning – emotional and cognitive capacities. Bio-medical theories of aging can be distinguished from social construction of aging: one, focusing on the bio-psychological constituent of aging; two, on how aging has been socially constructed. One perspective is driven from ‘within’ and privileges the expression from inner to outer worlds. The other is much more concerned with

the power of external structures that shape individuality. In essence, this social constructionism poses the problem from the perspective of an observer looking in, whilst bio-medical model takes the stance of inside the individual looking out [2].

However, equating old age with illness has encouraged anti-aging researchers to think about aging as pathological or abnormal. The undesirability of conditions labelled as sickness or illness transfer to those who have these conditions, shaping the attitudes of the persons themselves and those of others towards them. Sick role expectations may result in such behaviors as social withdrawal, reduction in activity, increased dependency and the loss of effectiveness and personal control – all of which may result in the social control of elderly people through medical definition, management and treatment. Indeed, individual lives and physical and mental capacities which were thought to be determined solely by biological and psychological factors, are, in fact, heavily influenced by social environments in which people live – yet bio-medicine is a powerful domain.

Bio-medical gerontology is a fundamental domain where medical discourses on aging have become located and this is very powerful in articulating ‘truths’ about aging. Under the guise of science and its perceived tenets of value-freedom, objectivity and precision [2], bio-medical gerontology has a cloth of legitimacy for its discourses on anti aging. However, Powell [1] asks a fundamental question: how has bio-medical gerontology not only stabilized itself with a positivist discourse that not reflects history but also the total preoccupation of science and the ‘problems’ of aging with the solution of anti-aging?

The bio-medical model represents the contested terrain of decisions reflecting both normative claims and technological possibilities. Bio-medicine refers to medical techniques that privilege a biological and psychological understanding of the human condition and rely upon ‘scientific assumptions’ that position attitudes to aging in society for their existence and practice. Scientific medicine based on anti-aging is based on the biological and psychological sciences. Some doctrines of the biomedical model more closely reflect the basic sciences while others refer to the primary concern of medicine, namely diseases located in the human body. Most important is that these beliefs hold together, thereby reinforcing one another and forming a coherent

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orientation toward the mind and body. Indeed, the mind-body dualism had become the location of regimen and control for emergence of scientific in positivist methodological search for objective 'truth'.

The end product of this process in occidental society is the "bio-medical model". In this sense, bio-medicine is based on the biological and psychological sciences. Some doctrines of the biomedical model more closely reflect the basic sciences while others refer to the primary concern of medicine, namely diseases located in the human body. Most important is that these beliefs hold together, thereby reinforcing one another and forming a coherent whole [2]. By developing an all-encompassing range of bio-medical discourses, many forms of social injustice could be justified as 'natural', inevitable and necessary for the successful equilibrium of the social whole such as mandatory retirement and allocation of pensions [3].

Such a dual biological-psychology typology may have inclusions and omissions which may differ from other scholar's interpretations but the aim is to provide a critical analysis of approaches to anti-aging and the scientific assumptions upon which they are based.

There has long been a tendency in matters of aging and old age to reduce the social experience of aging to its biological dimension from which are derived a set of normative 'stages' which over-determine the experience of aging. Accordingly being 'old', for example, would primarily be a individualized experience of adaptation to inevitable physical and mental decline and of preparation for death [1]. The paradox of course is that the homogenising of the experience of old age which the reliance on the biological dimension of old age entails is in fact one of the key elements of the dominant discourse on aging and old age.

Biological approaches to aging have focused on searching for the reasons why and how human beings change over time in terms of physical and physiological characteristics. Bromley (1988, 77 quoted in Powell, 2005: 29) suggests that aging is a degenerative process and contends that:

'... aging can be conveniently defined as a complex, cumulative, time related process of biological and psychological deterioration occupying the post-development phase of life'

Furthermore, according to some, the 'passage of time' for human organisms are related to physical changes in and on the body: 'hair loss' or 'graying of hair', 'decrease in reproductive system', and 'cardiovascular functioning' are examples. These processes have been called 'physiological changes' that are designed to contribute to the body's ability to function as it traverses across the aging process.

Such bodily processes are designed to maintain a balance of internal working conditions coined homeostasis [3]. A key example of this scientific assumption is the relationship of oxygen to blood system. Oxygen is transported by hemoglobin in the blood system to the body's 100 trillion cells. According to Biggs [2] the inability of the body to maintain homeostasis compromises 'normal functions' and 'survival'. The key issue here is one of internal body and functions; however, there is another wider questions whether changes to the body exemplify 'decline'.

However, changes outside the body may also disturb homeostasis such as environmental pollution [3]. Although, the dominant narrative in the biological explanation of aging is that the ability to perform bodily functions will affect an individuals survival. The causal factors of the breakdown of these functions are essentially contested. Major

causes of death at the turn of the twentieth century were infections and diseases, whereas major deaths in western societies at turn of 21st century are chronic diseases: cardiovascular disease, cancer and stroke [1]. A posing question is whether these changes to the body are inevitable and natural consequences of aging? Aging it seems is linked with increased 'risk' of illness and disease [2]. The relationship is not necessarily causal: aging does not cause disease and disease does not cause aging.

According to Biggs [2] biological aging affects every individual, evidencing itself overtly and covertly at different ages and in different organs and systems depending on a whole series of cascading effects. Secondly, another prominent example of biological aging is a focus on the pathological formation of 'impairment in the body'. It is partly assumed to be due to the aging process but it may be made worse by the 'dementing process' such as Alzheimer's Disease [1]. According to Powell [1] 'postural hypotension' is another of those problems that are age-related. In age-related vulnerabilities physiological systems decline with age resulting in a shift in the accuracy of the body to control the chemical and cellular environment and thus leaving individuals more prone to diseases of aging. In other words, the biological facet of aging is related to internal problems of the body as a person grows older. Coupled with this, there are certain biological viewpoints that suggest that older people have many 'inevitable medical problems':

'In fact, if one were to look at the presenting medical problems of the elderly, six symptoms would stand out: mental confusion, respiratory problems, incontinence, postural instability and falls, immobility and social breakdown'. (Timiras, 1997, 54 quoted in Powell, 1995: 23).

For Biggs [2] such an approach has suggested the following theoretical assumptions: that the human body is portrayed as a machine and overworked machines and human bodies 'wear out' and 'decline'; the human body grows but 'decays' with time; 'abnormal cells' are formed as a result or damage to DNA from 'internal problems', all future cells are marked to be different, 'in error' and 'inferior' to the original intact parent cell; human skin 'wrinkles' over time with passing of pigment cells; Aging and death are built in programmed events that result from genes 'turning on' and 'turning off' – for example, Biggs suggests there is gendered evidence for this amongst females such as menopause events; bodily aging causes problems of vision, hearing and sensory function and balance. Healthy living and diet are seen as key shields to curtail the problems of biological 'aging'. The individualized notion of aging as espoused by biological aging suggests that the body is in decline but as an individual ages especially venal in 'old age'. An interesting question is whether these physical changes are inevitable consequences of aging? The perceptions of aging through biology not only has postulated perspectives about aging but also there has been the psychological approach that has helped to coalesce particular discourses about aging.

Historically, the study of aging and old age was dominated by a Freudian paradigm that suggested that as individuals age and reach 'old age' were structured and regimented and not amenable to development or change. Psychology as a discipline of study had been much more concerned with childhood development (cf. Powell [1]). Like its biological counter-parts, it saw the aging process as decline in psychological well-being and adaptive ability as people enter old age. The framing of the psychological argument was that human functioning followed the biological journey of positive development in childhood, reaching a peak in early adulthood followed by inevitable decline, senescence and loss of functions into old age.

Furthermore, according to Powell [1] psychological aging processes include changes in personality and mental functioning. Changes are considered a 'normal' part of adult development, some are the result of physiological changes in the way the brain functions.

Biological and psychological characteristics associated with aging have been used to construct scientific representations of aging in modern society. The characteristics of biological aging as associated with loss of skin elasticity, wrinkled skin, hair loss or physical frailty perpetuates powerful assumptions that help facilitate attitudes and perceptions of aging. It may be argued that rather than provide a scientific explanation of aging, such an approach homogenizes the experiences of aging by suggesting these characteristics are universal, natural and inevitable. These assumptions are powerful in creating a knowledge base for health and social welfare professionals who work with older people in particular medical settings such as a hospital or general doctors surgery and also for social workers [1].

### The implications of bio-medical assumption on anti aging

Biggs [2] suggests that a prevailing ideology of ageism manifests by the bio-medical model by its suggestion that persons with such biological/psychological traits have entered a spiral of decay, decline and deterioration. Along with this goes certain assumptions about the ways in which people with outward signs of aging are likely to think and behave. For example, there are assumptions that 'older people are poor drivers' or that older people have little interest in relationships that involve sexual pleasure that are all explained away by 'decline' and 'deterioration' master narratives that comprise an aging culture. The effects of the 'decline' and 'decay' analogies can be most clearly seen in the dominance of medico-technical solutions to the problems that aging and even an 'aging population' [3] is thought to pose. Here, the bio-medical model has both come to colonise notions of age and reinforce ageist social prejudices to the extent that 'decline' has come to stand for the process of aging itself [1].

### Foucault and aging

The French social philosopher Michel Foucault has provided a critique of medical sciences that can be used to assess the bio-medical models of anti-aging. Foucault [4] was particularly interested in the limits and possibilities of discourses from "human sciences" (biology for example) because of their attempts to define human subjectivity. Foucault [4] shows the extent to which medicine objectifies the 'sick' body, once it has been medicalized. For Foucault [4] the body is not 'natural' but 'created' and reproduced through medical discourse. In *The Birth of the Clinic*, Foucault illustrates how the medical gaze opened a domain of clear visibility [1] for doctors, by allowing them to construct an account of the condition of the patient and to connect signs and symptoms with particular diseases. The space in which the gaze operated moved from the patient's home to the hospital. Similarly, the body of the 'madman', according to Foucault, was viewed as 'the visible and solid presence of his disease'. Hence, the biomedical gaze focuses upon the body and 'normalization' involved 'treatment of the body' [1].

Bio-medicine became a disciplinary strategy which extended control over minutiae of the conditions of life and conduct of individuals and understanding of bodies. Bio-medical gerontology became an institution in its own right, in which the advice and expertise of bio-medical professionals was geared to articulating 'truths' about bodies [1]. Medical domination through anti-aging and scientific discourses objectified bodies appropriated through the aging process as 'diagnoses

began to be made of normality and abnormality and of the appropriate procedures to achieve the norm'[5]. In this way examining the body and mind of older people was intrinsic to the development of power relationships in contemporary society and opportunities for disciplines and approaches synonymous with anti-aging to proliferate [6-8].

### Conclusion

Powell [1] argues that people themselves derive their sense of identity in later life from the achievements of the past and what remains to be accomplished in the future, rather than from a set of stereotypical—usually negative bio-medical—attributes of old age. Bio-medical scholars can study persons of a certain age, but their reality seldom reflects that of the subjects of study when understanding human aging is ignored because becoming, and being, old are embodied and experiential social processes not bio-medical processes of 'terminal drop'.

The re-territorialisation of a social understanding of aging in society, is a strategy that parallels the denial of older people's sense of agency and subjectivity within the main traditions of the bio-medical model. From our discussion, it would seem that aging is a mode of embodied subjectivity for social gerontologists to unravel. Aging should be celebrated, not pathologised as a "problem". Anti-aging stances state more about the underlying ageist assumptions of some its researchers, than it tells us about the experiences of the real experts they should be listening to: older people themselves.

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