Michael J. Scott
**USTTA*

ANTHROPOMETRICS, AUXOLOGY AND TABLE TENNIS

Abstract

Anthropometrics is the study of patterns in human body size and their correlates over a period of time. Auxology is the study of human growth. Both studies confirm that the world population (approximately 6 billion people) is getting taller.

Height is determined by the complex interaction of genes and environment. With the advance of modern medicine and plentiful nutrient-rich food in the developed world, average height has increased dramatically. Nutrition is now believed to be the most important factor in determining height. Previously it was thought to be genetics.

Over the past 100 years people have increased significantly in height. Americans were the tallest in the 19th Century at 1.71 m (5'7.3"). Today they average 1.77 m (5'10. 8"). Several nations in Europe have now surpassed the United States, particularly the Netherlands and Scandinavian countries. In a century's time the Dutch have gone from being the smallest people in Europe to the tallest in the world. Their men average 6'1" (185.42 cm) and the women 5'8" (172.72 cm). This increase has been so dramatic that many physical structures had to be redesigned and altered to accommodate their much taller frames. Ceilings had to be lifted, furniture redesigned, lintels raised to keep foreheads from hitting them etc…

Table tennis had its origin around 1900. It was initially played on dinning room tables, which were customarily 2'6" or approximately 76 cm in height, which is the standard height of table tennis tables today. Therefore, for over 100 years the height of the table tennis table has been the same.

Cabinet manufacturers in the United States have always had a standard height for their fixtures such as bath vanities, sinks, kitchen countertops, dining room tables, etc… Until recently this height was as 30" (76 cm) high. Note this 30" (76 cm) was the identical height of most dining room tables when table tennis originated and was no doubt why the table tennis tables have always been the same height of 2'6" (or 76 cm). Until the year 2000, there was not much variation among off-the-rack manufactured bath and kitchen vanities. In the year 2000, manufacturers decided that the furniture height averages based on their prior specifications were now obsolete. They stated that present day Americans were beginning to resent having to stoop, bend, and squat just to brush their teeth or wash their hands in a sink. They are now producing vanities that are 34.5" (87.63 cm) to 36' (91.44 cm) tall. Shouldn't table tennis table's height be adjusted accordingly?

Other sports have adjusted their playing dimensions, rules, and equipment to adjust for the increase in the size of their present day athlete's (e.g. basketball).

If the sport is to continue proportionately to the increase in the height of players perhaps in the distant future even the length and width of the table may have to be adjusted. Standardization of equipment may help to keep down the price of equipment and promote tradition but in the immediate future, if not now, some consideration should be given to adjusting the table height for the personal comfort and health of our athletes from an orthopedic standpoint.

Key words: *table tennis, antropometrics, auxology*

ANTHROPOMETRICS, AUXOLOGY, AND TABLE TENNIS

Anthropometrics is the study of patterns in human body size and their correlates over a period of time. Auxology is the study of human growth. Both studies confirm that the world population (approximately 6 billion people) is getting taller.

Height is determined by the complex interaction of genes and environment. With the advance of modern medicine and plentiful nutrient-rich food in the developed world, average height has increased dramatically. Nutrition is now believed to be the most important factor in determining height. Previously it was thought to be genetics.

Asian populations were once thought to be genetically inherently shorter. However, with nutritional and health improvement in Asian nations increases in height has also occurred. Therefore it is now a popular assumption that humans, as a species, may possess a roughly similar genetic height potential (excluding permutations such as the Pygmies).

Differences in nutritional status results in wide variations in adult height even within populations of the same genetic make-up. For example: individuals from higher socio-economic classes tend to be taller than their lower class counterparts whether in impoverished third-world countries or in developed nations. As the general health and nutrition increases around the globe, researches have concluded this is the primary cause of the increase in height.

Growth and height have long been recognized as a measure of the health and wellness of individuals as well in the general population. In fact, the United Nations now uses height to monitor nutrition in developing countries.

Historically, increases in height have not been constant. The heights of the century old skeletons are estimated by the length of the skeleton's femur as legs compose approximately one-half of the adult human's height. In northern Europe over the past twelve hundred years human's stature has followed a U-shaped curve: a high about 800 A.D.; a low in the 17th Century; and now considerably higher again.

Before 1750, chronic hunger, malnutrition, disease, and early death were the norm. The maladies of malnourishment and widespread disease were reflected in attainable height. In 1750, the average height of adult males in England, the world's most economically advanced nation at this time was 5'5" (U.S. Customary & British Imperial System of Measurement) or 165.1 cm (International Metric System) and even that exceeded averages in France and Norway. Viewing the suits of armor in the Tower of London reminds us of how small people of long ago really were.

Over the past 100 years people in industrialized nations have increased significantly in height by 4" (10 cm). The average height of British males soared from 5'6" (167.54 cm) to 5'10" (177.8 cm) between 1865 and 1980.

In North America, Europeans who years ago immigrated to the United States, became taller than relatives remaining in Europe. In fact, Americans in the 18th and 19th centuries were the tallest in the world. Today they average 5'10.8" (1.77 m). Several nations in Europe have now surpassed the United States, particularly the Netherlands and Scandinavian countries. Some believe the average rate of height increase in America is now comparatively less because of further migration from Mexico and Asian countries.

In a century's time the Dutch have gone from being the smallest people in Europe to the tallest in the world. Their men average 6'1" (185.42 cm) and the women 5'8" (172.72 cm). Some credit this spurt in height due to the superior Dutch childcare. The Dutch reportedly have the world's best prenatal and postpartum clinics which are free of

charge for every citizen. This increase has been so dramatic that many physical structures had to be redesigned and altered to accommodate their much taller frames. Ceilings had to be lifted, furniture redesigned, lintels raised to keep foreheads from hitting them etc…

The relation of Anthropometrics and Auxology to the sport of table tennis:

Table tennis had its origin around 1900. It was initially played on dinning room tables, which were customarily 2'6" or approximately 76 cm in height. The International Table Tennis Federation (ITTF) records go back to the 1930's and official table tennis tables were standardized at 2'6" in height. Since 1975, the ITTF measurements have been expressed only in metric terms. The listed measurements for an official ITTF table are: 76 cm high; 2.74 m long; and 1.525 m wide. Therefore, for over 100 years the height of the table tennis table has been the same (actually it was lowered 0.2 cm when they changed from inches to centimeters). As we have learned from various sources, the average height of people worldwide has increased several inches over this 100-year period.

Cabinet manufacturers in the United States have always had a standard height for their fixtures such as bath vanities, sinks, kitchen countertops, dining room tables, etc… Until recently this height was as 30" (76 cm) high. Note this 30" (76 cm) was the identical height of most dining room tables when table tennis originated and was no doubt why the table tennis tables have always been the same height of 2'6" (or 76 cm).

Until the year 2000, there was not much variation among off-the-rack manufactured bath and kitchen vanities. The records of the United States cabinet manufacturers state that Americans were getting taller by about 2" (5.08 cm) every 75 years. In 1850, the companies said the average man's height was 5'5" (165.1 cm). By 1925 it was 5'7" (170.18 cm) and today it's about 5'10.8" (177.8 cm). So in the year 2000, the manufacturers decided furniture height averages based on their prior specifications were now obsolete. They stated that the present day Americans were beginning to resent having to stoop, bend, and squat just to brush their teeth or wash their hands in a sink. They are now producing vanities that are 34.5" (87.63 cm) to 36" (91.44 cm) tall. An increase of 4.5" to 6" (11.43 cm to15.24 cm). Some manufactures presently offer wall-mounted sinks that are height-adjustable. Table tennis tables with telescoping adjustable legs have been made for certain players (e.g. children, Paralympics, Special Olympics, wheelchair).

Other sports have adjusted their playing dimensions, rules, and equipment to adjust for the increase in the size of their present day athlete's (e.g. basketball and baseball). Isn't it logical for the sport of table tennis to also do so? Even a minimal increase of 2" (5 cm) would be beneficial.

If the sport is to continue proportionately to the increase in the height of players perhaps in the distant future even the length and width of the table may have to be adjusted. Standardization of equipment may help to keep down the price of equipment and promote tradition but in the immediate future, if not now, some consideration should be given to adjusting the table height for the personal comfort and health of our athletes from an orthopedic standpoint.