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THUMBS SIGN: MEASUREMENT OF ANGLE TO WHICH THE THUMB IS ROTATED TO STAGE OBESITY.

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Abstract:

Our healthcare is overburdened with the ever increasing population size and it's time for us in the Pre-clinical Department and Para - clinical department to work synchronously with the clinical Department to ease the pressure of the Clinicians. It is found out that the clinicians spend an ample amount of time in finding out the body mass index. This body mass index calculation is complex and involves finding out the height of the patient, weight of the patient and then also involves a calculation. This needs time. Some - times the clinicians rely on some non – medicos also to calculate and this leads to a lot of errors and somehow there is a confusion of whether such practices can be allowed. This study puts in an effort to find if the position of the nail of the thumb with respect to the body could help in making the rough calculation of body mass index easy.

Keywords: Cross sectional, Thumb's position, Obesity.

Introduction:

Our healthcare is overburdened[1,2] with the ever increasing population size and it's time for us in the Pre-clinical Department and Para - clinical department to work synchronously with the clinical Department to ease the pressure of the Clinicians. It is found out that the clinicians spend an ample amount of time in finding out the body mass index. This body mass index calculation is complex and involves finding out the height of the patient, weight of the patient and then also involves a calculation. This needs time. Some - times the clinicians rely on some non – medicos also to calculate and this leads to a lot of errors and somehow there is a confusion of whether such practices can be allowed.

Obesity leads to a lot of burden on healthcare and it leads to morbidity and mortality[3,4,5]. There is a lot of speculation on the topics like obesity leads to diabetes and hypertension. Tons of studies indicate the same[46,7]. On the other hand there are also studies which indicate that decrease in obesity and practicing healthy life styles have led to decrease incidence of diabetes and hypertension. And it's a known fact that diabetes and hypertension leads to all sorts of organ damage on a long run thus leading to a lot of burden in the overburdened deficient healthcare system[8,9]. One of the preliminary study done by DrShishirkumar et al[10]were successful in finding the relation of thumbs in relation to the body but the limitation of the study was that, they could not calculate the exact angle but could only comment on the place where the nail of the thumb was placed when standing in a erect position. This study puts in an effort to find if the position of the nail of the thumb with respect to the body could help in making the rough calculation of body mass index easy.

Aims and objectives:
To find out angle to which the thumb is rotated to stage obesity.

Materials and Methods:

Study design: Cross sectional study

Study settings: Multi center study. This study was started in Kanachur Institute of Medical Sciences in Oct 2017. It was also conducted in Kasturba Medical College-Manipal Academy of Higher Education , Mangalore, Personal clinics of Dr HaseebAman and Dr PrakashHarishchandra and the last league of the study was conducted in JNUIMSRC, Jaipur. The project finished in October 2020.

Sample size:400

Procedure:
The subjects were divided into four groups. The first group included students and staff in whom the BMI was less than 18.5 and were underweight. The second group was normal and the BMI was in the range of 18.5 to 25. The third group consisted of people who were overweight and their BMI was in the range of 25 to 30 and the last group had BMI more than 30.
The subjects were asked to stand casually and then a goniometer was used to measure the angle made by the direction of nail of the thumb with respect to the central axis of the body.
The angles were measured and then noted in an excel sheet.

Inclusion Criteria:
- Exactly 250 people were included in each group and none of them were allowed to cross over.

- All the subjects were aged between 20 and 40 years. This was done to reduce the age related bias.

Exclusion Criteria:

- Any thumb deformity.
- Upper limb deformity.

Statistical analysis: Only descriptive statistics in the form of average with standard deviation was used.

Results:

Images 1, 2 and 3 – Procedure.

Table 1: BMI < 18.5

Group 1	Mean Angle	Std deviation
No - 100	114.67 degrees	± 9.19 degrees

Table 2: BMI 18.5 - 25

Group 1	Mean Angle	Std deviation
No - 100	41.16 degrees	± 7.29 degrees

Table 3: BMI 25 -30

Group 1	Mean Angle	Std deviation
No - 100	89.54 degrees	± 6.12 degrees

Table 4: BMI > 30

Group 1	Mean Angle	Std deviation
No - 100	111.16degress	± 3.76 degrees

Image 4,5,6 and 7: Showing orientation of the angles

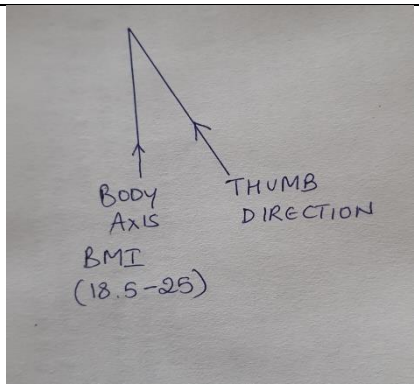

Image 4

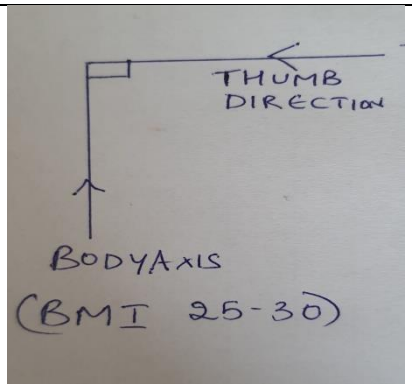

Image 5

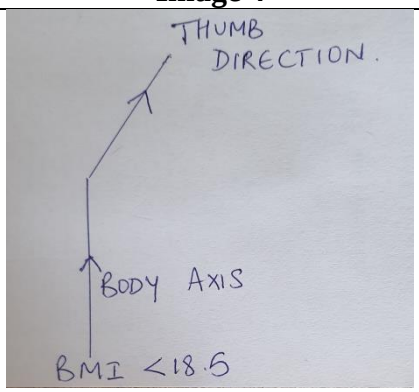

Image 6

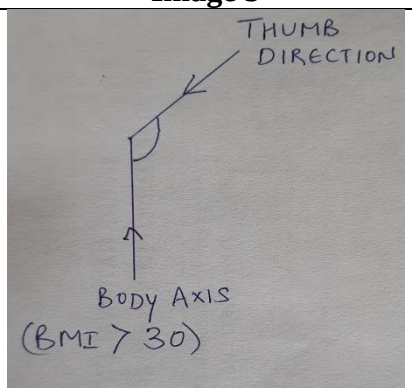

Image 7

Discussion:

In this study in group 1 the mean angle was found to be 114.67 degrees, the standard deviation was found to be ± 9.19 degrees.
In group 2 the mean angle was found to be 41.16 degrees, the standard deviation was found to be ± 7.29 degrees degrees.
In group 3 the mean angle was found to be 89.54 degrees, the standard deviation was found to be ± 6.12 degrees.
In group 4 the mean angle was found to be 111.16degress degrees, the standard deviation was found to be ± 3.76 degrees.
The difference in angles in Group 1 and group 4 are similar but the orientation of the thumb was internal in Group 4 as represented by arrows in Image 7 and outwards in Group 1 as represented by arrow in image 4.
Our study is actually can be considered as a continuation of the study which was conducted by Shishirkumaret al[10].

There are a lot of interesting topics in which a Pre and Para – Clinical Department can indulge themselves and their research can ease the lives of the clinicians. Slowly but on a sure path this changes have been happening throughout the world. The Pre and Para clinical Department faculty in India are with the basic MBBS degrees and this will amount to a lot of changes in the research settings. Slowly Medical Schools around the world understand this change and there are a lot of areas in which the research in these Departments can actually be focused in betterment of the clinician's lives. One such area is focusing the research on how to implement the basic sciences knowledge in a clinical setting and this research is one such example.

In many clinical settings an assistant to the clinician is made to do such jobs. But how far this can be trusted is the issue. They are also used to take blood pressure, temperature and even respiratory rates. This is not all clinicians fault since their profession is overburdened, they depend upon these people. There are many incidences when the assistant has moved on to open up their own clinic. This is a hazard in all aspects. So this study is one such effort in focusing the research and applying the basic knowledge onto the clinical field.

Conclusion:

The study is successful in finding out the mean angle between the nail of the thumb and the body of the individual in different stages of obesity. The study is intended to be of immense help to the clinicians in saving precious time. This study was a multi centered study and thus would be helpful to apply this knowledge over a large scale of population. This study also is intended to be extremely helpful to the budding physicians.

Future scope of the study:

Many such studies on a long run could help in regression analysis.

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References:

1. American Diabetes Association. Economic consequences of diabetes mellitus in the US in 1997. Dia- betes Care. 1998;21:296-309.
2. Mokdad AH, Bowman BA, Ford ES, Vinicor F, Marks JS, Koplan JP. The continuing epidemics of obesity and diabetes in the United States. JAMA. 2001;286:1195- 1200.
3. Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH. The disease burden associated with over- and Obesity JAMA, 1999:282: 1523-1529.
4. Pi-Sunyer FX. Health implications of obesity. Am J ClinNutr. 1991;53:1595S-1603S.
5. Centers for Disease Control and Prevention. Na- tional Diabetes Fact Sheet: General Information and Na- tional Estimates on Diabetes in the United States, 2000. Atlanta, Ga: US Dept of Health and Human Services, Centers for Disease Control and Prevention; 2002.
6. Ford ES, Williamson DF, Liu S. Weight change and diabetes incidence: findings from a national cohort of US adults. Am J Epidemiol. 1997;146:214-222.
7. ResnickHE, Valsania P, Halter JB, Lin X. Relation of weight gain and weight loss on subsequent diabe- tes risk in overweight adults. J EpidemiolCommu- nity Health. 2000;54:596-602.
8. Will JC, Williamson DF, Ford ES, Calle EE, Thun MJ. Intentional weight loss and 13-year diabetes inci- dence in overweight adults. Am J Public Health. 2002; 92:1245- 1248.
9. Allison DB, Fontaine KR, Manson JE, Stevens J, vanitallie TB. Annual deaths attributable to obesity in the United States. JAMA. 1999;282:1530-1538.
10. Shishirkumar, Shivarama CH, Roshan S, Chethana YK, Nishitha. Thumbs sign in obesity: You do not need to check the weigh, instead watch your thumbs. MedPulse – International Journal of Anatomy. November 2019; 12(2): 36-38.