INTRODUCTION-
Some part of foot is not seen in footprint because of presence of arches which makes sole concave. An arched foot is most distinctive feature of man (fig no.1). These arches maintain proportional distribution of the body weight. Concavity of the arches protects the plantar vessels and nerves from compression. When foot is on the ground the arches flatten somewhat but when off the ground they restore the original contour. So it works like spring to help in jolting and jumping from the height. Flat foot (Pes planus) is a condition in which the arches are collapsed and the entire sole touches the ground (figure no. 2).

The arches present right from birth, although they are masked by excessive amount of fat in their sole, an apparent flat foot (fat foot) is present in many children up to the age of 2 years. In weight bearing areas of foot fat pad atrophies and normal arches appear. Most people with flat feet remain asymptomatic they do not suffer. In some cases, flat feet can cause pain, swelling, or sore foot as well as shin splints, Achilles tendinitis, and plantar fasciitis. Present study is to know how easily flat foot can be diagnosed by simple footprint method and it is as reliable as other radiological methods.

MATERIAL AND METHODS-
Present study was conducted on 100 children aged between 5-11 years having flat foot. The 100 children were selected from the department of orthopedic M.Y. hospital Indore. Footprint was taken by the help of ink method then Staheli’s plantar arch index calculated. Radiograph was taken in lateral view of both foot in standing position. Talo first metatarsal (TFM) angle were assessed by radiological expert. Data of both study are compared. Correlation between TFM angle and planter arch index value is established statistically.

RESULTS - Observation shows that correlation between TFM radiological angle and planter arch index is significant (p value <0.05) with correlation value 0.33 for right foot and 0.49 for left foot.

Conclusion - Flat foot can be diagnosed by simple ink footprint method and it is as reliable as other radiological methods.
DISCUSSION-

Result of the study is supported by the studies of Kanatli U, Yetkin H, et al [1] compared footprint and radiographic analysis of the feet in March 2001. This study was to investigate the relationship between radiologically measured angles and the arch index obtained from footprint analyses in 38 children with flat foot. A positive correlation of arch index was found between lateral talo-horizontal and lateral talo-first metatarsal angles (p < 0.05). These angles have been used by some authors to describe the height of the medial longitudinal arch of the foot. So footprint analysis could be used effectively for screening studies and at individual office examinations. Chen et al [2] observed in 2006 the correlation between selected measurements from footprint and radiograph of flat foot. They did study on 32 children age range 7-13 years they obtained subarch angle from electronic footprints and to compare the results with radiographic measurements. They found significant correlations between the subarch angle from electronic foot print and the talo-first metatarsal angle. Arnold José Hernandez et al [3] did calculation of the Staheli’s planter arch index and prevalence of flat feet on 100 children aged 5-9 years in 2007. Flat feet were evaluated by means of footprint and planter arch index. Correlation between X ray studies and foot print shows that foot print is effective for individual studies and population based investigations.

CONCLUSION –

Study concluded that there is significant correlation between planter arch index and TFM angle (P<0.05) as indicated by correlation values (for right foot it is 0.33 and for left foot it is 0.49). Hence we can conclude that for diagnostic tool foot print method is as effective as radiological method. It is also simple, cost effective, easy to apply and satisfactory for routine clinical examination. This method is non invasive and does not use radiation as well. It can be used as a feasible method for application on follow up cases taking physiotherapy or other treatment.

Figure no.1 – medial and lateral arches of foot

Figure no. 2 - Normal and flat foot