Abstract: The liver is recognized as a valuable source of nutrients in human nutrition but there are few reports of the lipid profile of chicken liver. The aim of this work was to determine the fat content as well as the fatty acids composition in whole raw chicken livers of birds fed with 1- a control diet and 2- an EPA (eicosapentaenoate) - DHA (docosahexaenoate) enriched diet. The study was carried out using twelve laying hens (H&N Brown Nick) locally grown by a commercial egg producer. Total fat was determined by Soxhlet method and the fatty acids profile was performed with gas chromatography method. Fat content of chicken liver decreased from 15.14 (control) to 14.27 g/100g for the birds fed with the enriched diet. The predominant saturated acid (SFA) in all samples was palmitate (C16:0), followed by stearate (C18:0). Oleate (C18:1) was the major monounsaturated fatty acid (MUFA) in all samples, followed by palmitoleate (16:1). The predominant polyunsaturated acid (PUFA) was linoleate (C18:2) for all samples; however arachidonate (C20:4) was the second most important PUFA in the livers from the birds fed with the control diet while docosahexaenoate (C22:6) was the second most important PUFA in the livers from the birds fed with the enriched diet. The results also showed that EPA and DHA significantly increased in the livers from the birds fed with the supplemented diet. Therefore the use of an EPA-DHA supplemented diet on poultry resulted in the increase of omega3 fatty acid content in poultry livers.