

# Extended characterization of lipidic profile: evaluation of lipoprotein subfractions



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## Introduction

Dyslipidaemia is one major cause for atherosclerosis and cardiovascular disease. Atherogenicity of LDL particles vary with particle size, density and lipid composition. Smaller and denser subparticles are more atherogenic than the larger ones, so it's important to quantify and know the type of sdLDL present in an individual in order to access cardiovascular risk. The **aim** of this study is to compare and evaluate two different techniques for the analysis of the atherogenic lipidic profile of dyslipidaemic individuals.

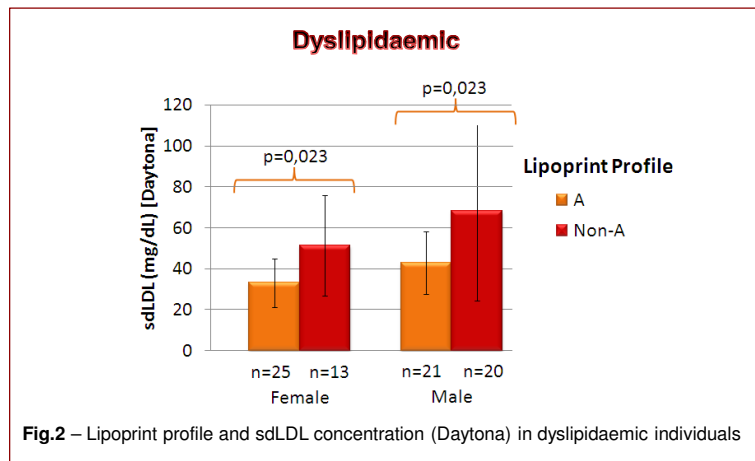
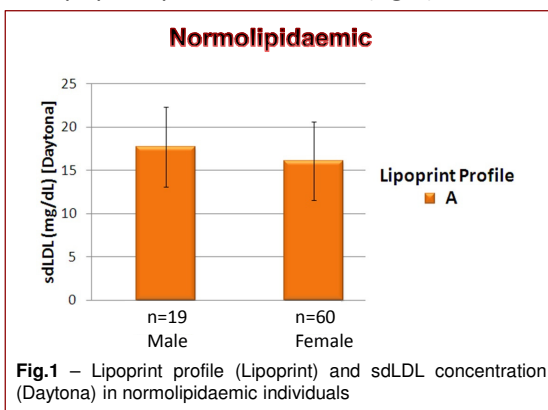
## Methods

In serum of normolipidemic and dyslipidaemic (Total Cholesterol > 290 mg/dL or LDL > 190 mg/dL) Portuguese adults (without treatment), through polyacrilamide electrophoresis (Lipoprint, Quantimetrix) lipoprotein subfractions profile were obtained as a lipidogram indicating "Profile A" or "Not indicative of profile A" (regarding the absence/presence of sdLDL). The quantification of sdLDL through enzymatic/colorimetric methods (Daytona, Randox) was also obtained (sdLDL > 35 mg/dL are associated with cardiovascular risk). Statistical analysis was performed using SPSS (v20).

## Results

All 79 normolipidaemic individuals presented Lipoprint profile A and sdLDL concentration under 35 mg/dL (Daytona) (female = 15,724 ± 4,598 mg/dL and male = 16,087 ± 4,535 mg/dL) (fig.1).

Relative to the 79 dyslipidaemic individuals, 25 females showed Lipoprint profile A and 13 "Not indicative of profile A", with sdLDL 32,989 ± 11,967 mg/dL and 51,283 ± 24,605 mg/dL, respectively (p = 0,023), and 21 males presented Lipoprint profile A and 20 "Not indicative of profile A", with sdLDL 42,758 ± 15,262 mg/dL and 67,994 ± 43,759 mg/dL, respectively (p = 0,023). SdLDL concentration mean in both groups is consistent with Lipoprint profile observed (fig.2).



## Discussion and Conclusion

Daytona is a certified method to quantify sdLDL. Lipoprint is a qualitative method, allowing the separation of the seven subfractions of LDL. Both methods are in agreement and supply complementary results. These results suggest that both are useful for characterization of the lipidic profile of normolipidemic and dyslipidaemic individuals but these studies should be confirmed in a larger sample.