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Effect of oral and mental task on Time Up and Go in COPD.

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Abstract

Introduction: The aim of this study is to evaluate the effects of an oral or mental cognitive task on mobility and cognitive performance in COPD.

Methods: 12 COPD (64 ± 13 years old, FEV1: 50±19%) participated in this study. A control condition and two different cognitive tasks were tested: count back from 3 (3) and 7 (7) in oral (O) and mental (M) condition during the Time Up and Go (TUG). We calculated the Dual Task Cost (DTC, += decreased performance) on TUG (DTC_{TUG}) and cognition (DTC_{cogn}) for all cognitive loads and conditions. We evaluated the effect of speech production (SP) using this equation: $DTC(SP) = DTC_{TUG}(Mental) - DTC_{TUG}(Oral)$ for 3 and 7, as well as the cognitive load level effect on DTC ($CL_{TUG} = DTC_{TUG}(3) - DTC_{TUG}(7)$) for M and O on TUG.

Results: The addition of the cognitive loads, mental and oral, significantly affected the TUG results ($p < .001$) compared to the control condition (6.5(1.2)s): 8.8(2.6)s and 8.7(1.2)s for M3 and M7; 9.0(2.5)s and 9.3(1.7)s for O3 and O7. The DTC_{TUG} is increased for each condition and loads: $DTC_{TUG}O3 = +40(39) \%$; $DTC_{TUG}M3 = +38(45) \%$; $DTC_{TUG}O7 = +45(27) \%$; $DTC_{TUG}M7 = +35(37) \%$; $DTC_{cogn}O3 = +6(42) \%$; $DTC_{cogn}O7 = 55(28) \%$. The effect of SP and CL are not different for the two different levels: $SP3 = -3(22) \%$, $p = 0.73$; $SP7 = -10(21) \%$, $p = 0.125$; $CLO = -5(20) \%$, $p = 0.364$ and $CLM = -3(22) \%$, $p = 0.682$. The difference between $DTC_{cogn}(O3)$ and $DTC_{cogn}(O7)$: $-50(27) \%$, $p < 0.001$.

Conclusion: The cognitive task in oral and mental condition increases the TUG in COPD. The condition and cognitive load decrease the mobility performance. Nevertheless, speech production and cognitive load level do not seem to influence it. The complexity of the task has a strong influence on the cognitive performance when the COPD walks.

[COPD](#) [Physical activity](#) [Cognitive dysfunction](#)

Footnotes

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