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Applying energy approach in the evaluation of eco-driving skill and eco-driving training of truck drivers(Article)

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Краткое описание

In spite of the vast progress in the field of eco-friendly transportation technologies, complete rejection of combustion engine powered vehicles, especially in the cargo transportation sector, is still far off. As road transportation of freight contributes significantly to global transport emissions, minimizing truck fuel consumption is an urgent matter. In this article, eco-driving skills of truck drivers are considered as an important factor in reducing fuel consumption. To allow for an objective and dynamic assessment of eco-driving skills, we used an energy approach and calculated integrated indicators, directly characterizing nonproductive energy expenditures while driving. In the first experiment, drivers of higher qualifications demonstrated better eco-driving skills. In the second experiment, 10 drivers received eco-driving training with an instructor, supported by a device measuring nonproductive energy expenditures. As a result of the training, reduction of fuel consumption by 13.6% in average was achieved. Long-term effect of the training was moderate (4% reduction in fuel consumption 3 months after the training). Promotion of eco-driving training in transportation companies could bring a significant reduction in fuel expenses and CO₂ emissions. However, a long-term driver support after completion of eco-driving training is necessary to reinforce changes in the driver behavior. © 2018 Elsevier Ltd