

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Cross-sectional surveillance study to phenotype lorry drivers' sedentary behaviours, physical activity and cardio-metabolic health
AUTHORS	Varela Mato, Verónica; O'Shea, Orlagh; King, James; Yates, Thomas; Stansel, David; Biddle, Stuart; Nimmo, Myra; Clemes, Stacy

VERSION 1 - REVIEW

REVIEWER	Keith M. Diaz Center for Behavioral Cardiovascular Health, Columbia University Medical Center, New York, NY, USA.
REVIEW RETURNED	05-Aug-2016

GENERAL COMMENTS	<p>This was a cross-sectional study of 87 lorry drivers enrolled from a single, UK based company. The authors sought to quantify the time lorry drivers spend in sedentary behavior during work and non-work days. The authors report that the lorry drivers were extremely sedentary on work days, accruing on average 13 hours/day. In contrast, lorry drivers were far less sedentary on non-work days (8 hours/day, $p < 0.001$). Using an isotemporal substitution approach, the authors furthermore report that replacing 30 min of sedentary time with MVPA on workdays was associated with a significant reduction in waist circumference and an increase in HDL cholesterol.</p> <p>The paper addresses a seemingly novel research question as the authors state that no previous study has objectively measured sedentary behavior in lorry drivers. Several concerns, however, need to be addressed:</p> <ol style="list-style-type: none">1. Although the authors have some of the first available data to quantify sedentary behavior in lorry drivers, they unfortunately do not rigorously evaluate their sedentary patterns (they merely present total hours/day). As evidence suggests that the timing (e.g. around large meals) and pattern (in prolonged uninterrupted bouts) of sedentary behavior carry prognostic relevance, analyses describing the timing and pattern of sedentary behavior would greatly strengthen the paper.2. Given that this is one of the first studies to objectively quantify sedentary behavior in lorry drivers, the authors also have a unique opportunity to identify what factors predict sedentary behavior patterns in this population. This is a missed opportunity that the authors are encouraged to explore (possible predictors: anxiety, depression, work hours, work shift).3. A major limitation of this study is that it lacked a matched comparison group. Throughout the discussion, the authors make
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	<p>many inferences that were not statistically evaluated:</p> <ul style="list-style-type: none"> • “The present study show that lorry drivers accumulate higher volumes of daily sitting on workdays in comparison to bus drivers” • “Weight-related co-morbidities such as pre-diabetes, diagnosed type II diabetes, and hypertension were also higher in the sample compared to the general population” <p>4. Throughout the manuscript, the authors discuss the cardiovascular health profile of lorry drivers. This strays from the focus and message of the paper (sedentary behavior patterns of lorry drivers) and perhaps is irrelevant.</p> <p>5. The paragraph in the Discussion section titled ‘Does lorry driving impact mental health’ should be removed from the paper. It is extraneous to the aims of the paper and furthermore you have no data to support that lorry driving impacts mental health (cross-sectional prevalence data in 87 participants does not allow you to test this).</p> <p>6. In the abstract and methods, the authors describe that the study includes 159 participants. This is misleading. It should be clearly articulated that only 87 participants were included in analyses. Furthermore, a description of why participants were excluded is needed. For example, how many participants were excluded for non-compliance to the accelerometer protocol?</p> <p>7. The authors should present data on mean wear time as well as the number of valid days of wear for the activPAL.</p> <p>8. Why was non-wear time defined as sitting/lying for >3 hours with no transitions when the authors have logs in which non-wear was reported? Furthermore, why was this non-wear criteria chosen? Others have used far different criteria for the activPAL. (see Berendsen et al. <i>Physiol Meas.</i> 2014 Nov;35(11):2205-12. PMID: 25341022).</p> <p>9. The authors state that “the data were not normally distributed”. Can the authors describe what data were skewed? All variables?</p> <p>10. The authors include heart rate in their isotemporal substitution model. Do the authors have a rationale for its inclusion? It does not seem apparent that changes in heart rate will yield favorable changes in risk for chronic disease.</p> <p>11. Could the difference in sedentary time for work and non-work days be attributed to the difference in waking hours? That is, drivers were awake longer during work days and hence have a greater opportunity to be sedentary? Thus, instead of facilitating sedentary breaks during work to target reductions in sedentary time, would decreasing shift hours be an easier way to decrease sedentary time? The authors are encouraged to evaluate and discuss.</p>
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REVIEWER	Prof. Dr. med. Roman Leischik University Witten/Herdecke, Germany
REVIEW RETURNED	09-Aug-2016

GENERAL COMMENTS	Varela Mato et al describe an important topic of sedentary behaviour of lorry drivers and metabolic consequences. It is a surprise that the
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	<p>Metabolic Syndrome (MetS) and Diabetes Mellitus Type 2 (DM 2) occurred in this study relatively low. The difference in this prevalence to published data in general population should be discussed. This problem has to be considered in abstract. From 2003 to 2012, overall prevalence of the metabolic syndrome in the United States was 33% (95% CI,32.5%33.5%), with significantly higher prevalence in women compared with men (35.6% vs 30.3%,respectively, $P < .001$)¹. The prevalence of MetS in German Firefighters, police officers and office workers was 13.4% /36.4%/30.43% and in the total group of 198 participants 23.2%². I would expect a higher prevalence of MetS and DM 2 in the occupational group of lorry drivers. In Germany, the prevalence of the MetS is 23%, with an upward trend ³. I think we have to clarify which definition was used in submitted study. I would prefer to use the definition based on the criteria of the International Diabetes Federation (IDF) in 2006 ⁴. The authors should described the used definition and related reference. In my opinion the environmental factors and the setting should be discussed ^{5,6} and the socioeconomic situation od lorry drivers more explained. Social inequalities lead to further negative metabolic situation ^{7,8}. The problem of lorry workers is not a problem of the occupation only, but a global⁹, international problem¹⁰ caused of wrong unhealthy behavior, unhealthy cities¹¹ and insufficient political instrumentation⁵. It would be valuable if the discussion can be extend by mentioned topic and suggested references could be cited. A comparison to other involved occupations (police officers^{12,13}) and the results of the present study should be discussed. After this revision I can recommend this paper for publication.</p> <ol style="list-style-type: none"> 1. Aguilar M, Bhuket T, Torres S, Liu B, Wong RJ. Prevalence of the metabolic syndrome in the united states, 2003-2012. JAMA : the journal of the American Medical Association. 2015;313:1973-4. 2. Leischik R, Foshag P, Strauss M, et al. Aerobic Capacity, Physical Activity and Metabolic Risk Factors in Firefighters Compared with Police Officers and Sedentary Clerks. PloS one. 2015;10:e0133113. 3. Neuhauser H, Ellert U. Prävalenz des metabolischen Syndroms in Deutschland: eine Sensitivitätsanalyse. . German Medical Science 2005. 4. Alberti KG, Zimmet P, Shaw J. Metabolic syndrome--a new world-wide definition. A Consensus Statement from the International Diabetes Federation. Diabetic medicine : a journal of the British Diabetic Association. 2006;23:469-80. 5. Leischik R, Dworrak B, Strauss M, et al. Plasticity of Health. German Journal of Medicine. 2016;1:1-17. http://www.gjom.de/en/articles/plasticity-of-health/ 6. World Health Organisation. World Health Report. 2013. at http://www.who.int/whr/2013/report/en/index.html 7. Shrivastava U, Misra A, Gupta R, Viswanathan V. Socioeconomic factors relating to diabetes and its management in India. J Diabetes. 2015;10.1111/1753-0407.12316. 8. Kinge JM, Strand BH, Vollset SE, Skirbekk V. Educational inequalities in obesity and gross domestic product: evidence from 70 countries. J Epidemiol Community Health. 2015;69:1141-6. 9. World Health Organisation. Global Strategy on Diet, physical Activity and Health. 2004. (Accessed 15.12.2015, 2015, at http://www.who.int/dietphysicalactivity/strategy/eb11344/strategy_english_web.pdf 10. World Health Organisation. Global status report on noncommunicable diseases. 2010. 2014, at http://www.who.int/nmh/publications/ncd_report_full_en.pdf 11. World Health Organisation. Healthy Cities. WHO, 2016. at http://www.euro.who.int/en/health-topics/environment-and-
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	<p>health/urban-health/activities/healthy-cities</p> <p>12. Hartley TA, Knox SS, Fekedulegn D, et al. Association between depressive symptoms and metabolic syndrome in police officers: results from two cross-sectional studies. <i>Journal of environmental and public health</i>. 2012;2012:861219.</p> <p>13. Tharkar S, Kumpatla S, Muthukumaran P, Viswanathan V. High prevalence of metabolic syndrome and cardiovascular risk among police personnel compared to general population in India. <i>The Journal of the Association of Physicians of India</i>. 2008;56:845-9.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1

Reviewer Name: Keith M. Diaz

Institution and Country: Center for Behavioral Cardiovascular Health, Columbia University Medical Center, New York, NY, USA.

Competing Interests: None declared

This was a cross-sectional study of 87 lorry drivers enrolled from a single, UK based company. The authors sought to quantify the time lorry drivers spend in sedentary behavior during work and non-work days. The authors report that the lorry drivers were extremely sedentary on work days, accruing on average 13 hours/day. In contrast, lorry drivers were far less sedentary on non-work days (8 hours/day, $p < 0.001$). Using an isothermal substitution approach, the authors furthermore report that replacing 30 min of sedentary time with MVPA on workdays was associated with a significant reduction in waist circumference and an increase in HDL cholesterol.

The paper addresses a seemingly novel research question as the authors state that no previous study has objectively measured sedentary behavior in lorry drivers. Several concerns, however, need to be addressed:

1. Although the authors have some of the first available data to quantify sedentary behavior in lorry drivers, they unfortunately do not rigorously evaluate their sedentary patterns (they merely present total hours/day). As evidence suggests that the timing (e.g. around large meals) and pattern (in prolonged uninterrupted bouts) of sedentary behavior carry prognostic relevance, analyses describing the timing and pattern of sedentary behavior would greatly strengthen the paper.

Author response: The shift patterns shown by this sample of lorry drivers (different waking-up hours and working hours across 24 hours over 7 days for each of the drivers) required a manual analysis of the data for a precise analyses of the driver's waking hours and motion behaviours. Unfortunately, this approach does not allow us to extract sedentary patterns and bout durations. However, we agree with the reviewer's comments and therefore we have added an extra analysis looking at differences in sedentary and standing time, LPA and MVPA during working-hours compared to non-working hours. In addition, we have added information on transitions from sitting to standing, to explore how often lorry drivers break up their sitting time during workdays, non-workdays, working hours and non-working hours. We have also included information on the number of step counts per day during these different domains. Lastly, we have included the lack of sedentary bouts data as a limitation of the paper in the discussion.

2. Given that this is one of the first studies to objectively quantify sedentary behavior in lorry drivers, the authors also have a unique opportunity to identify what factors predict sedentary behavior patterns in this population. This is a missed opportunity that the authors are encouraged to explore (possible

predictors: anxiety, depression, work hours, work shift).

Author response: With this paper we aimed to behaviourally phenotype lorry drivers' sedentary and non-sedentary behaviours as a first approach to exploring such behaviours in this very particular occupational group. We believe that the reviewer highlights an interesting point, however this is not in line with the paper's main aim, which is also why no robust methods to assess anxiety and depression were included in the original design of the study. The HADS questionnaire was used as a mere screening tool of potential cases of anxiety and depression. This prevents us from exploring any links between sedentary behaviours and anxiety and depression. Furthermore, due to the cross-sectional nature of this study, we are unable to examine within this dataset predictors of sedentary behaviour. It was also felt that the relatively small sample sizes falling into the different shift categories was not conducive to an analysis exploring potential correlates of sedentary behaviour.

3. A major limitation of this study is that it lacked a matched comparison group. Throughout the discussion, the authors make many inferences that were not statistically evaluated:

- "The present study show that lorry drivers accumulate higher volumes of daily sitting on workdays in comparison to bus drivers"
- "Weight-related co-morbidities such as pre-diabetes, diagnosed type II diabetes, and hypertension were also higher in the sample compared to the general population"

Author response: This is the first study in the UK to explore lorry drivers' sedentary and non-sedentary behaviours, hence for this cross-sectional descriptive study a matched comparison group was not included. The comparisons made throughout the discussion were included as mere discussion points to highlight the worse lifestyle behaviours showed by this sample of lorry drivers compared to other populations. Therefore this paper was designed as a first step to promote further research examining sedentary behaviour and health in this understudied occupational group.

4. Throughout the manuscript, the authors discuss the cardiovascular health profile of lorry drivers. This strays from the focus and message of the paper (sedentary behavior patterns of lorry drivers) and perhaps is irrelevant.

Author response: As a secondary aim of the paper was to profile lorry drivers' markers of cardiovascular health and mental health, as stated at the end of the introduction, and in the title, we feel that the data on lorry drivers cardiovascular and mental health adds information to the paper and compliments the sedentary behaviour and physical activity data. We have therefore not made any changes to the primary and secondary aims of the paper.

5. The paragraph in the Discussion section titled 'Does lorry driving impact mental health' should be removed from the paper. It is extraneous to the aims of the paper and furthermore you have no data to support that lorry driving impacts mental health (cross-sectional prevalence data in 87 participants does not allow you to test this).

Author response: we appreciate the reviewer's comment and this paragraph has now been removed.

6. In the abstract and methods, the authors describe that the study includes 159 participants. This is misleading. It should be clearly articulated that only 87 participants were included in analyses. Furthermore, a description of why participants were excluded is needed. For example, how many participants were excluded for non-compliance to the accelerometer protocol?

Author response: This study includes a main cohort of lorry drivers (N=159) that completed the health assessments and a sub-sample of drivers (n=87) that provided additional valid activPAL data (providing information on sedentary and non-sedentary behaviours). However, after the reviewer's

comment we realised this was not very clear and the wording has now been modified in the abstract and the results for clarification. Information on the excluded participants was also added in the results section.

7. The authors should present data on mean wear time as well as the number of valid days of wear for the activPAL.

Author response: The lorry drivers participating in this study complied with the activPAL “24 hours over 7 days” wear protocol. Therefore mean wear time is 24 hours. Information on valid days of wear has now been included in the results section and we have made it clearer in the results that drivers adopted a 24 hour/day wear protocol.

8. Why was non-wear time defined as sitting/lying for >3 hours with no transitions when the authors have logs in which non-wear was reported? Furthermore, why was this non-wear criteria chosen? Others have used far different criteria for the activPAL. (see Berendsen et al. *Physiol Meas.* 2014 Nov;35(11):2205-12. PMID: 25341022).

Author response: Although lorry drivers self-reported their non-wear time, an additional protocol was established to control for errors associated with self-reported data. Therefore non-wear time was considered as time spent in either a sitting/lying or standing position for ≥ 3 hours, with no transitions. This cut-point was established based on checks conducted in the dataset and techniques described elsewhere (Winkler et al., 2016). This information has now been added to the methods section.

9. The authors state that “the data were not normally distributed”. Can the authors describe what data were skewed? All variables?

Author response: this has now been modified to “all data were not normally distributed”.

10. The authors include heart rate in their isotemporal substitution model. Do the authors have a rationale for its inclusion? It does not seem apparent that changes in heart rate will yield favorable changes in risk for chronic disease.

Author response: we thank the reviewer for highlighting this point and share his opinion. This has now been removed from the analysis.

11. Could the difference in sedentary time for work and non-work days be attributed to the difference in waking hours? That is, drivers were awake longer during work days and hence have a greater opportunity to be sedentary? Thus, instead of facilitating sedentary breaks during work to target reductions in sedentary time, would decreasing shift hours be an easier way to decrease sedentary time? The authors are encouraged to evaluate and discuss.

Author response: We have now expanded this very interesting discussion point, and included “this sample of drivers spent less time sedentary on non-workdays compared to workdays (8 hours/day versus 13 hours/day), which could in part be explained by the observation that drivers accumulated more sleeping time during non-workdays 576.8(258.6, 886.9) than workdays (399.8(158.0, 774.3). This could be understood as a compensational behaviour for the shortage of sleep during workdays induced by the shift patterns and long hours at work. Indeed, several studies have shown that lorry

drivers are a sleep deprived group due to their shift patterns and work duration, averaging 3.8 to 5.2 hours of sleep daily”

We agree with the reviewer’s comment and believe that to help lorry drivers to reduce their sitting time, there should be a reduction in their shift hours alongside some other health strategies. However, this is very difficult to change with the current legislation; this sample of lorry drivers operates within the UK and EU regulations framework, which allows them to drive for up to 9 hours a day, or 10 hours twice a week, plus whatever time they have to spend waiting in the different depots per day. In addition, the UK transport sector is experiencing a great shortage of drivers; therefore it is unlikely a reduction in the shift hours will happen in the short-term. We believe that further research is essential to trigger a potential change in policies and legislation.

Reviewer 2

Reviewer Name: Prof. Dr. med. Roman Leischik

Institution and Country: University Witten/Herdecke, Germany

Competing Interests: no competing interests

Varela Mato et al describe an important topic of sedentary behaviour of lorry drivers and metabolic consequences. It is a surprise that the Metabolic Syndrome (MetS) and Diabetes Mellitus Type 2 (DM 2) occurred in this study relatively low. The difference in this prevalence to published data in general population should be discussed. This problem has to be considered in abstract. From 2003 to 2012, overall prevalence of the metabolic syndrome in the United States was 33% (95% CI,32.5%33.5%), with significantly higher prevalence in women compared with men (35.6% vs 30.3%,respectively, $P < .001$)¹. The prevalence of MetS in German Firefighters, police officers and office workers was 13.4% /36.4%/30.43% and in the total group of 198 participants 23.2%². I would expect a higher prevalence of MetS and DM 2 in the occupational group of lorry drivers. In Germany, the prevalence of the MetS is 23%, with an upward trend ³. I think we have to clarify which definition was used in submitted study. I would prefer to use the definition based on the criteria of the International Diabetes Federation (IDF) in 2006 ⁴. The authors should described the used definition and related reference

Author response: Thanks for this relevant comment. We had used the International Diabetes Federation criteria to define metabolic syndrome in the original analysis. However, there was an error in the glucose data, as we were using the fasting whole blood sample instead of the plasma glucose sample. This has now been amended. The prevalence of the metabolic syndrome in this sample has now increased, and is more comparable to the figures highlighted by the reviewer. The new results have been described in the results section.

In my opinion the environmental factors and the setting should be discussed ^{5,6} and the socioeconomic situation of lorry drivers more explained. Social inequalities lead to further negative metabolic situation ^{7,8}. The problem of lorry workers is not a problem of the occupation only, but a global⁹, international problem¹⁰ caused of wrong unhealthy behavior, unhealthy cities¹¹ and insufficient political instrumentation⁵. It would be valuable if the discussion can be extend by mentioned topic and suggested references could be cited. A comparison to other involved

occupations (police officers^{12,13}) and the results of the present study should be discussed. After this revision I can recommend this paper for publication.

Author response: Following the reviewer's advice, we have now included new discussion points around the transport sector working environment and its impact on lorry drivers' health. We have also mentioned the low education levels in drivers in general and how this could be a potential predictor of poor health behaviours. This information has been included in the last paragraph of the discussion section.

VERSION 2 – REVIEW

REVIEWER	Keith M. Diaz Center for Behavioral Cardiovascular Health, Columbia University Medical Center, New York, NY, USA.
REVIEW RETURNED	25-Oct-2016

GENERAL COMMENTS	<p>The authors have addressed most of my concerns. Two, however, remain:</p> <p>The inclusion of the number of transitions from sitting to standing is appreciated, however is perhaps misleading (more sedentary breaks on working days vs. non-working days) because of differences in waking hours. It is suggested the number of transitions be expressed as transitions per waking hour instead of an absolute value.</p> <p>In response to this reviewer's concern (item #3) that the authors make inferences in the Discussion that were not statistically evaluated; the authors contend these inferences were included "as mere discussion points to highlight the worse lifestyle behaviors showed by this sample of lorry drivers compared to other population". The authors' response is appreciated but perhaps is misguided because of a lack of clarification. Although providing context/frame of reference for just how sedentary lorry drivers are relative to other populations is warranted; my concern is with regard to inferences that were not statistically tested and thus are unfounded or should be "toned down". For example, the authors state that "The present study suggest that lorry drivers accumulate higher volumes of daily sitting on workdays in comparison to bus drivers (13 hours/day versus 12 hours/day)." The number of hours per day sitting is actually quite similar (13 vs. 12 hours) between these two groups and are not suggestive of any group differences. Without appropriate statistical comparisons; it's difficult to interpret a 1 hour/day difference as evidence that lorry drivers accumulate higher volumes of daily sitting. The authors are encouraged to appropriately frame their discussion points throughout the discussion section and should considering rewording phrases such as "compared to" to "as reported in previous...". A nuance, but an important nuance.</p>
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REVIEWER	Roman Leischik University Witten Herdecke, Germany
REVIEW RETURNED	07-Oct-2016

GENERAL COMMENTS	<p>You have to explain what is pre-diabetes and what is pre-hypertensive, in my knowledge you have diabetes or not, and you are hypertensive or not.</p> <p>Metabolic syndrome can be define as pre-diabetes, but the definition of pre-diabetes is not clear and should be removed. The next question is why the results differ in your paper from first to revised version. Calculations of "%" is not difficult. It would be nice to know why we can see this difference (see your first and revised abstract). Would you present the original tables as excel -Table ? I think after this step the revision if you clear state your definitions then we can publish your paper, but you have to be more precise.</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer 1

Reviewer Name: Keith M. Diaz

Institution and Country: Center for Behavioral Cardiovascular Health, Columbia University Medical Center, New York, NY, USA.

Competing Interests: None declared

The authors have addressed most of my concerns. Two, however, remain:

The inclusion of the number of transitions from sitting to standing is appreciated, however is perhaps misleading (more sedentary breaks on working days vs. non-working days) because of differences in waking hours. It is suggested the number of transitions be expressed as transitions per waking hour instead of an absolute value.

Author response: thanks for this suggestion; this has now been changed in the analysis and the results.

In response to this reviewer's concern (item #3) that the authors make inferences in the Discussion that were not statistically evaluated; the authors contend the these inferences were included "as mere discussion points to highlight the worse lifestyle behaviors showed by this sample of lorry drivers compared to other population". The authors' response is appreciated but perhaps is misguided because of a lack of clarification. Although providing context/frame of reference for just how sedentary lorry drivers are relative to other populations is warranted; my concern is with regard to inferences that were not statistically tested and thus are unfounded or should be "toned down". For example, the authors state that "The preset study suggest that lorry drivers accumulate higher volumes of daily sitting on workdays in comparison to bus drivers (13 hours/day versus 12 hours/day)." The number of hours per day sitting is actually quite similar (13 vs. 12 hours) between these two groups and are not suggestive of any group differences. Without appropriate statistical comparisons; it's difficult to interpret a 1 hour/day difference as evidence that lorry drivers accumulate higher volumes of daily sitting. The authors are encouraged to appropriately frame their discussion points throughout the discussion section and should considering rewording phrases such as "compared to" to "as reported in previous...". A nuance, but an important nuance.

Author response: we understand the reviewers concerns and therefore the text has now been modified to "The present findings suggest that lorry drivers accumulate the highest sitting time volumes on workdays reported up to date (13hours/day). These are slightly higher than those seen in bus drivers (12hours/day), who have been found to be highly sedentary, compared to the general population.¹⁴"

Reviewer 2

Reviewer Name: Prof. Dr. med. Roman Leischik

Institution and Country: University Witten/Herdecke, Germany

Competing Interests: no competing interests

You have to explain what is pre-diabetes and what is pre-hypertensive, in my knowledge you have diabetes or not, and you are hypertensive or not.

Author response: Thanks for this relevant comment. We have now added further information to the methods paragraph in which we explain how the blood pressure readings were classified as “normal (systolic blood pressure (SBP) <120mmHg and diastolic blood pressure (DBP) <80 mmHg) pre-hypertensive (SBP: 120-139mmHg OR DBP: 80-89 mmHg) and hypertensive (SBP >140mmHg OR DBP >90 mmHg)” (Blood Pressure Association, 2008).

Relevant information on how capillary plasma glucose results were further classified into normal (<6.1mmol/L), pre-diabetes (6.1 to 6.9mmol/L) and diabetes (≥7.0mmol/L) (Diabetes UK, 2016) has also now been added to the methods section.

Metabolic syndrome can be define as pre-diabetes, but the definition of pre-diabetes is not clear and should be removed.

Author response: we appreciate the reviewer’s concern; we have now clarified in the methods section how fasting plasma glucose was clustered into normal, pre-diabetes and diabetes levels. The metabolic syndrome definition by the International Diabetes Federation was only used to explore the prevalence of this syndrome across this sample of drivers as described in the methods section.

The next question is why the results differ in your paper from first to revised version. Calculations of “%” is not difficult. It would be nice to know why we can see this difference (see your first and revised abstract). Would you present the original tables as excel -Table ? I think after this step the revision if you clear state your definitions then we can publish your paper, but you have to be more precise.

Author response: thanks for this relevant comment. In the original submitted version of this study, fasting whole blood glucose results were used instead of fasting plasma glucose; the latter is required by the International Diabetes Federation criteria to define metabolic syndrome . Therefore the results presented in the current version have been corrected accordingly. These results are higher as fasting plasma glucose tends to be ~12% higher than whole blood glucose tests (Diabetes UK, 2016).

VERSION 3 – REVIEW

REVIEWER	Keith M Diaz Columbia University Medical Center, New York, NY, USA
REVIEW RETURNED	14-Nov-2016
GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.