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## The development of national physical activity recommendations in EU Member States: A review of methodologies and the use of evidence

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Complete List of Authors:	Tcymbal, Antonina; Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Sport Science and Sport Gelius, Peter; Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Sport Science and Sport Abu-Omar, Karim ; Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Sport Science and Sport Foster, Charlie ; University of Bristol Faculty of Health Sciences, Centre for Exercise, Nutrition and Health Sciences, School for Policy Studies Whiting, Stephen; World Health Organization Regional Office for Europe, European Office for the Prevention and Control of Noncommunicable Diseases; Universidade do Porto, EPIUnit – Instituto de Saúde Pública Mendes, Romeu; Universidade do Porto, EPIUnit - Instituto de Saúde Pública; World Health Organization Regional Office for Europe, European Office for the Prevention and Control of Noncommunicable Diseases Titze, Sylvia ; University of Graz, Institute of Sports Science Dorner, Thomas; Medizinische Universität Wien, Centre for Public Health, Institute of Social Medicine Halbwachs, Christian; Bundes-Sport GmbH, Abteilung Breitensport Duclos, Martine; University Hospital CHU G. Montpied, INRA, UNH, CRNH Auvergne, University of Auvergne, Department of Sport Medicine and Functional Exploration Toussaint, Jean-Francois; Université de Paris Wendel-Vos, Wanda; National Institute for Public Health and the Environment Baxter, Beelin; United Kingdom Department of Health and Social Care Ferschl, Susanne; Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Sport Science and Sport Breda, Joao; World Health Organization Regional Office for Europe, European Office for the Prevention and Control of Noncommunicable Diseases
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3 **1 The development of national physical activity recommendations in EU**

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6 **2 Member States: A review of methodologies and the use of evidence**

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8 *3 Antonina Tcymbal<sup>1</sup>, Peter Gelius<sup>1</sup>, Karim Abu-Omar<sup>1</sup>, Charlie Foster<sup>2</sup>, Stephen Whiting<sup>3, 4</sup>,*  
9  
10 *4 Romeu Mendes<sup>3, 4</sup>, Sylvia Titze<sup>5</sup>, Thomas E. Dorner<sup>6</sup>, Christian Halbwachs<sup>7</sup>, Martine Duclos<sup>8</sup>,*  
11  
12 *5 Jean-François Toussaint<sup>9</sup>, Wanda Wendel-Vos<sup>10</sup>, Beelin Baxter<sup>11</sup>, Susanne Ferschl<sup>1</sup>, Joao*  
13  
14 *6 Breda<sup>4</sup>*

15  
16  
17 <sup>1</sup>Department of Sport Science and Sport, Friedrich-Alexander Universität Erlangen-Nürnberg

18  
19  
20 <sup>2</sup>Centre for Exercise, Nutrition and Health Sciences, School for Policy Studies, University of  
21  
22 Bristol

23  
24  
25 <sup>3</sup>EPIUnit – Instituto de Saúde Pública, Universidade do Porto

26  
27 <sup>4</sup>World Health Organization, Regional Office for Europe, European Office for the Prevention  
28  
29 and Control of Noncommunicable Diseases

30  
31  
32 <sup>5</sup>Institute of Sports Science, University of Graz

33  
34 <sup>6</sup>Department of Social and Preventive Medicine, Center for Public Health, Medical University of  
35  
36 Vienna

37  
38  
39 <sup>7</sup>Bundes-Sport GmbH, Abteilung Breitensport, Vienna

40  
41 <sup>8</sup> Department of Sport Medicine and Functional Exploration, University Hospital CHU G.

42  
43 Montpied, INRA, UNH, CRNH Auvergne, University of Auvergne, Clermont-Ferrand

44  
45 <sup>9</sup>IRMES (Institut de Recherche bioMédicale et d'Epidémiologie du Sport/INSEP), AP-HP,  
46  
47 Université de Paris

48  
49  
50 <sup>10</sup>National Institute for Public Health and the Environment, Bilthoven,

51  
52  
53 <sup>11</sup>UK Department of Health and Social Care, London

54  
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57  
58  
59 24 Corresponding author:

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Dr Antonina Tcymbal, e-mail: [antonina.tcymbal@fau.de](mailto:antonina.tcymbal@fau.de)

## 1 **Abstract**

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5 2 **Objectives:** We analyzed the information on methodologies and sources of evidence that EU  
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8 3 Member States used to develop their national physical activity recommendations. Five countries  
9  
10 4 (Austria, France, Germany, the Netherlands, and the UK) were chosen for detailed case study  
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12 5 analysis of development process.  
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17 7 **Design:** Cross-sectional survey.  
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21 9 **Participants:** The representatives of the 28 EU Member State governments to the EU Physical  
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24 10 Activity Focal Point Network.  
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28 12 **Outcome measures:** From national documents were extracted data on (a) the participants of the  
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31 13 development process, (b) the different methods used during development, and (c) on which  
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33 14 sources national PA recommendations were based. Additional survey for case study countries  
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35 15 provided (i) anonymized information on the institutional background, professional perspective  
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37 16 and expertise of the process participants, (ii) details on methods employed and rationale for  
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40 17 choosing them, (iii) details on development process and timeline, (iv) details on main source  
41  
42 18 documents used for recommendation development.  
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47 20 **Results:** Eighteen of twenty three national documents on physical activity recommendations  
48  
49 21 contained information about development process. The results also showed that countries used  
50  
51 22 different approaches to develop national recommendations. The main strategies were (a)  
52  
53 23 adoption of WHO 2010 recommendations, or (b) a combination of analysis and adoption of other  
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56 24 national and international recommendations and literature review. All of five case study  
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58 25 countries relied on review processes rather than directly adopting WHO recommendations. They  
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3 1 formed special expert working groups to develop recommendations, and four of them also  
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5 2 involved international experts in the developing process.  
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10 4 **Conclusions:** The study indicate important differences in the methods, the resources used and in  
11  
12 5 the final national PA recommendations themselves. This may be a source of inspiration for other  
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14 6 countries currently planning the development or update of national PA recommendations.  
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3 1 **Strengths and limitations of this study:**  
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- 5 2     • This is the first scientific overview of methodological approaches used to development  
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7 national physical activity recommendations.  
8 3  
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10 4     • The analysis and comparison of methodology and sources of evidence used in  
11  
12 development of national physical activity recommendations in the EU allows to identify  
13 5  
14 main strategies that countries applied and can be highly relevant to researchers,  
15 6  
16 practitioners and policy-makers and to other countries currently planning the  
17 7  
18 development or update of national PA recommendations.  
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21 9     • Data were collected by using questionnaire based on the WHO Health-Enhancing  
22 10  
23 Physical Activity (HEPA) Policy Audit Tool which provided comparable data for all 28  
24 11  
25 EU countries.  
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28 12     • Additional detailed information about development process in five selected case study  
29 13  
30 countries were collected through national experts and Physical Activity Focal Points.  
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33 14     • Main limitations of the study include usage data from a broader EU/WHO Europe survey  
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35 therefore some information was not available, not systematically selection of the case  
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37 study counties and a restriction to documents published before April 2018.  
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## 1 **Introduction**

2 Official recommendations (sometimes also referred to as “guidelines”) on the amount of physical  
3 activity (PA) that is necessary to achieve health benefits are one of the important elements of  
4 strategies to reduce inactivity and sedentary lifestyles <sup>1-3</sup>. PA guidelines are statements about  
5 levels of physical activity, based on epidemiological thresholds, where regular PA is associated  
6 with a significantly reduced risk of a range of conditions, diseases and mortality. They usually  
7 reflect a life course approach by age or life stage. PA guidelines are the rubric for setting  
8 population levels of PA for increased physical and mental health and provide benchmarks for  
9 national surveillance. Understanding the landscape for developing national physical activity  
10 guidelines will help identify differences and their impacts.

11 The World Health Organization (WHO) published the original version of its Global  
12 Recommendations on PA for Health in 2010 <sup>2</sup> and regularly encourages Member States to  
13 develop their own national recommendations <sup>4-6</sup>. Such recommendations, while not necessarily  
14 effective in directly boosting PA levels in a population <sup>7</sup>, may be particularly useful for fostering  
15 cooperation between government agencies and guiding health promotion professionals in their  
16 efforts to promote PA <sup>8,9</sup>.

17 Globally, many countries already have national PA recommendations in place and update them  
18 regularly, including most EU Member States <sup>1,10,11</sup>, the United States <sup>9,12</sup>, Canada <sup>13,14</sup> and  
19 Australia <sup>15,16</sup>. Various recent studies have compared the *contents* of the national PA  
20 recommendations in the European region <sup>10,11,17</sup>. Since 2010, countries have used different  
21 *methodologies* and *processes* for developing their PA recommendations. Available evidence  
22 (e.g. from the US, Canada and Australia) suggests that development processes have followed the  
23 development stages recommended by Trembley and Haskell <sup>18</sup> by including systematic literature  
24 reviews, reviews of existing national and global physical activity guidelines <sup>19,20</sup>, expert working

1 group meetings, consultations with stakeholders <sup>20</sup>, and gathering feedback from the public  
2 through the special website <sup>9</sup>. While a more elaborate/participatory process might help nations to  
3 put PA promotion on the national (policy) agenda, elaborate processes might require resources  
4 that are not available in all nations, and also might represent a duplication of existing work. It  
5 remains an open question which of these elements national governments wishing to develop PA  
6 recommendations should consider, especially in countries where resources and capacities are  
7 limited.

8  
9 This paper aims to provide a systematic overview of the main methodological approaches  
10 available using data collected directly from the Member States of the European Union (EU). The  
11 EU has a unique network of national PA “Focal Points” that allows for the systematic,  
12 harmonized collection and validation of cross-national data on PA and PA policy. Information  
13 on various aspects of PA policy, including national recommendations, is gathered by these Focal  
14 Points under coordination by the European Commission (EC) with the support of the WHO  
15 Regional Office for Europe. The surveys are conducted every three years based on the  
16 Monitoring Framework for the European Council Recommendation on promoting Health-  
17 Enhancing Physical Activity (HEPA) across Sectors <sup>3</sup>.

## 18 19 **Methods**

20 Table 1 provides an overview of the steps and timeline employed for our data collection and  
21 analysis. In 2018, the EC and WHO Europe conducted a survey to assess the implementation of  
22 the European Council Recommendation on HEPA across Sectors. Data were collected via the  
23 EU PA Focal Points Network: Focal Points were asked to complete an electronic questionnaire  
24 for their country covering 23 HEPA indicators. The questionnaire included a set of questions  
25 about national PA recommendations (Indicator 1). All 28 countries that were EU Member States

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1 at the time completed the questionnaire and provided information about the development status  
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3 of their national PA recommendations, their basis (e.g. other international or national  
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5 recommendations), and links to relevant documents. We retrieved the answers to Indicator 1,  
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8 checked the links to national PA recommendations and downloaded all available official  
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10 documents. Documents in languages other than English or German were translated via Google  
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12 Translate. We then conducted a detailed comparative analysis of the contents of the different  
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15 recommendations, which has recently been reported elsewhere <sup>17</sup>.

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21 For the paper at hand, we selected all those documents for further analysis that contained  
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23 information about the processes employed for developing the national PA recommendations. We  
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25 extracted and comparatively analyzed data on (a) the participants of the development process, (b)  
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27 the different methods used during development, and (c) on which sources national PA  
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29 recommendations were based.  
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35 The initial analysis showed that the official recommendations documents of five countries  
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37 (Austria <sup>21</sup>, France <sup>22</sup>, Germany <sup>23</sup>, The Netherlands <sup>24</sup> and the United Kingdom <sup>25</sup>) contained  
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39 dedicated sections with descriptions of the development methodology. As this suggested that  
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41 more detailed information on the development processes and their underlying rationale was  
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43 readily available for those countries, we selected them as case studies in order to enrich the data  
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45 and provide examples of actual procedures successfully employed by governments in the past. A  
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47 template was sent to the PA Focal Points of these countries asking them to provide short  
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49 structured reports with additional information on their national guideline development process.  
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52 This included (i) anonymized information on the institutional background, professional  
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54 perspective and expertise of the process participants, (ii) details on methods employed and  
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56 rationale for choosing them, (iii) details on development process and timeline, (iv) details on  
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3 1 main source documents used for recommendation development. To facilitate the completion  
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5 2 process, we pre-filled the template with all the information available from the EC/WHO Europe  
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7 3 survey and the official documents. We then brought completed templates into a unified format to  
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9 4 increase comparability and supplied them back to the specific Focal Points for final verification.  
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## 14 6 *Patient and Public Involvement*

16 7 No patient involved.  
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21 9 *[Table 1 about here]*  
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## 25 11 **Results**

### 26 12 *Overall analysis*

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28 13 The analysis of Focal Points' answers to the 2018 EC/WHO Europe questionnaire on HEPA  
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30 14 across Sectors showed that official documents with national PA recommendations were available  
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32 15 for 23 EU Member States <sup>1-17</sup>. Five of these were excluded from the analysis, either because their  
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34 16 documents did not contain information about minimum PA recommendations <sup>26-27</sup> or because the  
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36 17 recommendations were presented on websites only and did not contain any information about the  
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38 18 authors or the development process <sup>28-37</sup>. Eventually, 18 EU Member States were included in the  
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40 19 analysis (Austria <sup>21</sup>, Belgium (Flanders) <sup>38</sup>, Croatia <sup>39</sup>, Finland <sup>40-43</sup>, France <sup>22</sup>, Germany <sup>23</sup>,  
41  
42 20 Greece <sup>44</sup>, Ireland <sup>45</sup>, Italy <sup>46</sup>, Latvia <sup>47</sup>, Lithuania <sup>48</sup>, Luxembourg <sup>49</sup>, Malta <sup>50</sup>, The Netherlands  
43  
44 21 <sup>24</sup>, Slovakia <sup>51</sup>, Slovenia <sup>52</sup>, Spain <sup>53</sup>, United Kingdom <sup>25</sup>). An overview of the results is presented  
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46 22 in Table 2.  
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56 24 *[Table 2 about here]*  
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To begin with, countries chose different publication strategies for their PA recommendations, with potential implications for the required resources, synergies with other initiatives, and visibility of the topic on the national agenda. Eleven countries published their national PA recommendations in the form of dedicated, separate documents, while seven included them in other documents related more generally to PA and/or health promotion. Croatia<sup>39</sup>, Greece<sup>44</sup> and Luxembourg<sup>49</sup> combined recommendations on PA and healthy nutrition. The French national PA recommendations are part of a general document about national PA and physical inactivity indicators<sup>22</sup>. Other countries included PA recommendations in national action plans or policies on PA (Slovakia<sup>51</sup>), obesity (Malta<sup>50</sup>), or nutrition and PA for health (Slovenia<sup>52</sup>).

Sixteen national documents were published by government organizations. The national PA recommendations for Finland<sup>40-43</sup> were prepared and published by a private research organization (UKK Institute) with links to and funding from the national government, for Latvia<sup>47</sup> no information was available about the authors and publishers. In most of the countries, documents originated from the health sector, while organizations from education, culture, sport and nutrition were also involved in some cases (Finland<sup>40-43</sup>, France<sup>22</sup>, Spain<sup>53</sup>). Nine countries indicated that special organized working groups composed of national experts were formed to develop recommendations, and four additionally involved international experts in the development process (Austria<sup>21</sup>, Germany<sup>23</sup>, France<sup>22</sup>, UK<sup>25</sup>).

Regarding specific methods and steps used in the development process, Austria<sup>21</sup>, Germany<sup>23</sup>, France<sup>22</sup>, the Netherlands<sup>24</sup> and the UK<sup>25</sup> mentioned that special working group meetings were organized, mimicking guidelines age categories (e.g. Under 5s); France<sup>22</sup> conducted interviews with national stakeholders; Ireland<sup>45</sup> held special consultations with other national and international professionals in the field of PA promotion. The UK<sup>25</sup> used a web-based platform to

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3 1 provide an opportunity for the wider scientific community, stakeholders and interested parties to  
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5 2 give their input for the upcoming recommendations.  
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10 4 Nine countries performed a literature review to collect relevant scientific information about  
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12 5 recommended levels of PA. Nine countries analyzed other national and international PA  
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14 6 recommendations. Eight countries explicitly reported the adoption of the WHO Global  
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16 7 Recommendations on PA for Health (2010) as a method to create their own national  
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18 8 recommendations. All in all, the two predominant strategies pursued were (a) a combination of  
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20 9 literature review and analysis of other recommendations (seven countries) or (b) a direct  
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22 10 adoption of existing WHO recommendations without any review of other existing material (six  
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24 11 countries).  
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30 13 Twelve countries reported that their national recommendations were at least partly based on the  
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32 14 WHO 2010 recommendations, whose core statement is that individuals should engage in at least  
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34 15 150 minutes of moderate aerobic PA throughout the week, or 75 minutes of vigorous PA, or an  
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36 16 equivalent combination of both. Other international or national PA recommendations (the United  
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38 17 States (2008), Canada, Australia, Switzerland) were used as a basis for nine countries. Six  
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40 18 countries stated that their recommendations were based on the information gathered from their  
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42 19 literature reviews.  
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#### 47 21 *Case studies*

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49 22 The PA Focal Points from all five countries that were selected as case studies agreed to  
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51 23 contribute to the study by verifying the information provided in the pre-filled templates and  
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53 24 completing their country descriptions. General information provided by the PA Focal Points is  
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55 25 presented in the table 3.  
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3 1 [Table 3 about here]  
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8 3 The following sections provide the summaries of the specific steps of development processes in  
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10 4 Austria, France, Germany, the Netherlands, and the UK.  
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14 6 *Austria.* The development process of the Austrian 2010 PA recommendations was commissioned  
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16 by the Austrian Health Promotion Fund (Fonds Gesundes Österreich, FGÖ). FGÖ is a division of  
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18 the Austrian National Public Health Institute (Gesundheit Österreich GmbH, GÖG), a  
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20 corporation fully owned by the Austrian Ministry of Health (with the Minister acting as president  
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22 of the FGÖ). They commissioned the Austrian Public Health Association (ÖGPH) to team up  
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24 with the Austrian Society for Sports Medicine and Prevention (ÖGSMP) and the Austrian Sport  
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26 Science Society (ÖSG) to develop recommendations for HEPA based on the latest scientific  
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28 evidence. The development team eventually consisted of 14 researchers with a background in  
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30 sport science, public health, sports medicine, economics, injury prevention, and PA promotion  
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32 from universities, universities of applied sciences, different specialist societies, health promotion  
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34 organizations, and non-governmental organizations (NGOs). The development process took  
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36 place between March 2009 and January 2010. The starting point was a review of recently-  
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38 published and well-documented PA guidelines from other countries. On this basis, the  
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40 development team drafted recommendations and sent them to the three international experts for  
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42 comments. An updated draft was then discussed at a one-day meeting with the entire  
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44 development team and two international experts, leading to further revisions. In a half-day  
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46 meeting of the working group and 30 national experts, the guidelines were introduced to a  
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48 broader academic and professional community and further fine-tuned. The recommendations  
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50 were then finalized based on this feedback.  
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3 1 *France.* The 2016 French PA recommendations were based on a report produced in 2007 by a  
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5 2 multidisciplinary expert group commissioned by the National Institute for Health and Medical  
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7 3 Research (INSERM), which had systematically reviewed more than 2,000 international research  
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9 4 articles. In 2016, the National Agency of Sanitary Security (ANSES) assembled another group of  
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11 5 experts from sociology, epidemiology, physiology, clinical medicine, biology, psychology and  
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13 6 public health in order to update the recommendations of the INSERM group. This process took  
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15 7 about 24 months and involved more than 15 meetings. The ANSES group set out by developing  
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17 8 a methodology and by conducting a systematic analysis of studies and meta-analysis on PA.  
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19 9 Experts from the different disciplines carried out individual searches for different population  
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21 10 groups, including children and adolescents, adults, older people, and women during pregnancy.  
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23 11 The robustness of the results was assessed using three levels of proof commonly employed in  
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25 12 evidence-based medicine (A: Established scientific proof; B: Scientific presumption; C: Low  
26  
27 13 level of scientific proof). The sub-groups produced individual reports, which were subsequently  
28  
29 14 synthesized into a set of draft recommendations. These were validated and elaborated in a  
30  
31 15 collective effort by the entire expert group before being submitted to an extended group of  
32  
33 16 national and international experts for review. The recommendations were finalized and published  
34  
35 17 in 2016. They were used to update the 4<sup>th</sup> National Program for Nutrition and Health (PNNS  
36  
37 18 2019–2023) and served as a basis for a large-scale communication campaign for the general  
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39 19 population.

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49 21 *Germany.* The German 2016 PA recommendations were developed under the auspices of the  
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51 22 Federal Ministry of Health. The members of the recommendations development group were  
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53 23 recruited from the ministry's working group "Bewegungsförderung im Alltag" (*PA Promotion in*  
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55 24 *Daily Living*), a permanent advisory board for the implementation of the National Action Plan  
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57 25 "IN FORM – German national initiative to promote healthy diets and physical activity". The  
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1 team eventually consisted of 16 researchers from five German universities with a background in  
2 sport science, sports medicine, and PA promotion. The development process took place between  
3 February 2015 and February 2016. It was decided to base the recommendations on other high-  
4 quality national and international recommendations for PA. As a first step, a systematic literature  
5 review on the latest international PA recommendations for (a) children and adolescents, (b)  
6 adults and older adults and (c) persons with chronic diseases was conducted. Participating  
7 researchers then developed an evaluation framework containing 23 quality criteria. Using the  
8 framework, the quality of the PA recommendations identified in the review was then  
9 systematically assessed, and high-quality recommendations for each target group were identified.  
10 The content of these high-quality recommendations was analyzed and summarized in a draft  
11 document. The draft was discussed at a one-day workshop meeting with the entire development  
12 team and two international experts. The recommendations were then finalized based on this  
13 feedback.

14  
15 *The Netherlands.* The development of the 2017 Dutch PA recommendations was guided by the  
16 Health Council of the Netherlands, which is an independent scientific advisory body whose legal  
17 task is to advise ministers and Parliament in the field of public health and health/healthcare  
18 research. The development committee consisted of 14 experts with a background in sport  
19 science, exercise physiology, social science, public health and epidemiology from four  
20 universities, one university of applied sciences and two national research institutes. A secretariat  
21 appointed by the Health Council took the lead and main responsibility for drafting the  
22 recommendations. Regular meetings (approx. one per quarter) started in May 2016, and the final  
23 guidelines were published in August 2017. The Committee built on existing PA  
24 recommendations from Australia and the US, supplementing them with additional recently  
25 published evidence. In order to do so, the secretariat developed a review methodology, which

1 was discussed and agreed-upon at a meeting of the entire committee. The secretariat then  
2 conducted a systematic literature search limited to pooled analyses, meta analyses and systematic  
3 reviews of RCTs or prospective cohort studies on PA and sedentary behavior. Based on a  
4 decision algorithm, it appraised the strength of the evidence available for different thematic areas  
5 and prepared a set of draft recommendations. This draft was discussed, revised and finalized at  
6 subsequent meetings of the committee.

7  
8 *United Kingdom.* Work on the UK 2011 PA recommendations was led by the Department of  
9 Health in England. International and UK Experts were identified and invited to form three  
10 Expert Working Groups (EWG) for children and young people, adults, and older adults,  
11 respectively. Each EWG consisted of three national and one international expert. The  
12 development process took place between June 2009 and summer 2011. Each EWG drew upon  
13 three types of evidence: (1) recently-published evidence reviews used to construct or update  
14 international PA guidelines; (2) additional pooled analyses, meta-analyses and systematic  
15 reviews from prospective and RCT research published since the most recent reviews; (3) and any  
16 additional relevant papers identified by the respective EWG. On this basis, the EWGs collated  
17 the scientific evidence and prepared draft recommendations for new PA guidelines. First drafts  
18 were circulated to all other members of the overall group, and several teleconferences were held  
19 to review the evidence and develop revised drafts. A two-day scientific consensus meeting was  
20 held to review the working papers produced by all EWGs and discuss the draft  
21 recommendations. In order to provide the broader scientific community, stakeholders and other  
22 interested parties with an opportunity for input, a national consultation process was conducted  
23 using a web-based platform. The EWGs reviewed and revised their recommendations based on  
24 this feedback. The final individual EWG recommendations were then compiled into the updated  
25 PA guidelines for the UK.

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## 2 **Discussion**

3 Our study aimed to identify the methods used in the development of EU countries national PA  
4 guidelines. Based on the availability of the relevant data, it inevitably comes with a number of  
5 limitations that have to be borne in mind when interpreting our results. For one, our analysis is  
6 based on a broader EU/WHO Europe survey, not on data collected specifically for this purpose.  
7 Thus, despite our best of efforts to verify the available data and close existing gaps through  
8 additional research, some information is missing. Second, our five case studies are based on a  
9 convenience sample of countries for which a certain amount of information was already  
10 available and which had the necessary capacity to provide detailed descriptions of their  
11 development. Selecting case study countries systematically (e.g. to mirror the full spectrum of  
12 population size, economic performance, and geographical location) would have been more  
13 scientifically rigorous but might have exceeded the capacity of the national PA Focal Points.  
14 Finally, our analysis was limited to guideline development processes conducted before the 2018  
15 round of data collection by the EC and WHO, and more recent and/or currently on-going  
16 processes (e.g. in the UK<sup>54</sup>, Italy<sup>55</sup>, Finland<sup>56</sup> and Austria) were not considered.

17  
18 These limitations notwithstanding, we believe that our results can make important contributions  
19 to our understanding of national physical activity guideline development and has important  
20 implications for future research and policy. To our knowledge, this is the first study that  
21 analyzed and compared methodology of developing national PA recommendations in the EU  
22 (and, for that matter, in any group of countries). The data used for the study were collected  
23 directly from EU Member States governments, thus giving us the unique opportunity to assess  
24 situation in an entire region in a comparative fashion. Our results indicate important differences

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3 1 in these methods, the resources used and in the final recommendations themselves, depending on  
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5 2 whether they primarily used an “adoption” or a “construction” approach, or a mix of both.  
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10 4 Most of the analyzed PA recommendations were approved by government organizations, mostly  
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12 5 from the health sector. Sport is part of the portfolio of the national ministry of health in several  
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14 6 EU countries, which may explain this perceived dominance of the health sector. Alternatively,  
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16 7 the health sector may have more resources (and, potentially, a higher vested interest or perceived  
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18 8 obligation) than other sectors to organize the development of national PA recommendations.  
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24 10 A closer involvement of organizations from other sectors might help improve guideline  
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26 11 implementation. The formation of dedicated workgroups was a widespread strategy, but it was  
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28 12 not used by all countries. It is particularly interesting to note that only four countries relied on  
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30 13 support by international experts. The results also showed that countries used different  
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32 14 approaches to develop national recommendations. The main strategies were (a) adoption of  
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34 15 WHO 2010 recommendations, or (b) a combination of analysis and adoption of other national  
35  
36 16 and international recommendations and literature review. However, there seems to be no  
37  
38 17 discernable pattern as to what “type” of country uses which strategy. One might expect countries  
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40 18 with higher health promotion capacity and more resources to adopt their own standards that  
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42 19 require more resource-intensive approaches, while directly adopting international  
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44 20 recommendations might appear to be the most cost-effective choice for countries with limited  
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46 21 capacities. However, such a perspective neglects the potential desire of governments to utilize  
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48 22 the development process to put PA on the national policy agenda, and it is not borne out by our  
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50 23 results (e.g. with Italy adopting WHO recommendations while Malta conducted a literature  
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52 24 review). Regardless of the chosen methodological approach, none of the documents indicated  
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54 25 any recommendations that were developed precisely taking into account the specifics of the  
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1 country (e.g. climate, landscape, cultural aspects, etc.). Taking national context during  
2 development process can potentially help to increase uptake of recommendations.

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4 As mentioned above, the five case studies are not necessarily “typical” for the entirety of  
5 approaches in the EU, as they all relied on review processes rather than directly adopting WHO  
6 recommendations. However, the cases add important information to this overall comparison, e.g.  
7 regarding the potential composition of guideline development groups, key steps in the process,  
8 stages at which to involve external experts, and timeframes that a country should expect when  
9 drafting their own recommendations. All five countries formed special expert working groups to  
10 develop recommendations, and four of them also asked for advice from international experts.

11 This strategy appears very promising in order to improve the evidence-base of the  
12 recommendations, but it is presumably also resource- and time-consuming: Countries spent  
13 between one and two years to develop and publish their national PA recommendations.

14  
15 It is interesting to note that countries did not seem to coordinate their development processes  
16 internationally, potentially leading to the replication of efforts to review the existing evidence  
17 and to recommendations that closely resemble existing guidelines. However, feedback from case  
18 study countries indicates that the aim of conducting national literature reviews was not so much  
19 to come up with new information as to justify the use of existing (e.g. WHO) recommendations  
20 at the national level, and to provide national stakeholders with working documents in their own  
21 language.

22  
23 On the other hand, as we have shown elsewhere <sup>17</sup>, these similar processes still have led to  
24 noticeable differences in national PA recommendations. For example, among the case study  
25 countries, Austria and the UK are completely in line with the 2010 WHO recommendations,

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3 1 France largely mirrors them but has slight discrepancies for all age groups, Germany uses  
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5 2 WHO's recommendations for adults but different ones for children, and the Dutch guideline  
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7 3 committee does not see a scientific basis for requiring continuous activity periods of at least 10  
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9 4 minutes<sup>17</sup>. However, if countries adopt different PA guidelines, this potentially impacts their  
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11 5 existing surveillance data (prevalence of physical activity and trend data) and makes cross-  
12  
13 6 country comparisons within Europe even harder. Also, in countries where the public tends to be  
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15 7 more aware of international developments, there is a danger that new national recommendations  
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17 8 differing from other countries and WHO Guidelines will increase public confusion and negative  
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19 9 press for physical activity promotion.  
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## 26 11 **Conclusion**

27  
28 12 The information collated in this study may be a source of inspiration for other countries currently  
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30 13 planning the development or update of national PA recommendations. Many EU countries  
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32 14 already have recommendations<sup>17</sup>, but revisions might be warranted in light of the quick  
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34 15 evolution of the evidence base (see e.g. changes regarding  
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36 16 aerobic/strength training and 10-minute bout limits in the new UK and Dutch recommendations,  
37  
38 17 respectively). For these, more national governments might want to consider using intersectoral  
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40 18 workgroups and international expert advice. WHO might be able to play a larger role in  
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42 19 facilitating or providing such international expert advice. It might want to consider defining  
43  
44 20 "core" elements of its own recommendations for adoption by Member States, thus increasing  
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46 21 standardization while still allowing for adaptation to national contexts. EU governments in  
47  
48 22 particular might want to consider an even closer collaboration to render recommendation updates  
49  
50 23 more efficient, e.g. by coordinating literature reviews and building on each others' updates. One  
51  
52 24 might even consider the creation of a joint expert group with academics from all Member States  
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54 25 that could work to regularly update the evidence-base of recommendations. This would allow  
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1 countries to focus their efforts on adopting common core recommendations to their specific  
2 national contexts.

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10 From a research perspective, a number of important questions seem to warrant further  
11 investigation: Is it possible to define elements of “good practice” or even standard procedures for  
12 recommendations development, and can the supremacy of certain approaches over others (e.g.  
13 direct adoption of WHO guidelines vs. own literature review) be empirically demonstrated? How  
14 can countries with limited capacity best be supported, and how should countries react when new  
15 global guidelines become available? How important is the process of developing guidelines  
16 itself, not only in terms of the final output but with respect to national capacity building and  
17 agenda setting? In order to answer these questions, there is a need to learn more about  
18 methodologies employed outside of Europe, to compare methodologies globally, and to link  
19 development processes to the quality and impact of resulting recommendations. This might  
20 enable us eventually to define some core elements of a “good” development process, both with  
21 respect to ensuring recognition of the evidence base and to build national capacity for PA  
22 promotion.

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48 publication and they do not necessarily represent the decisions or the stated policy of the World  
49 Health Organization.

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18  
19 8 questionnaire and collected the survey data. PG, AT and KAO analyzed the survey data. AT  
20  
21 9 obtained and analyzed national recommendation documents. CF, ST, TD, CH, MD, JFT, WWV,  
22  
23 10 SF and BB provided detailed information about national PA recommendations development in  
24  
25 11 their countries and verified summary for publication. AT and PG drafted the manuscript. All  
26  
27 12 authors participated in the revision of the article. All authors contributed to and have approved  
28  
29 13 the final manuscript.  
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36  
37 16 Office for Europe, but written consent of the Physical Activity Focal Points of involved  
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39 17 countries, the European Commission, and the WHO Regional Office for Europe may be  
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41 18 required.  
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47 20 **Ethics approval:** Ethical approval not required for the use of country-level policy data as  
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49 21 included in this study.  
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1 *Table 1: Steps and timeline of data collection and analysis*

<b>Timeline</b>	<b>Steps</b>
January – March 2018	Joint EC/WHO Europe survey to monitor the implementation of the European Council Recommendation on promoting HEPA across Sectors
February – March 2019	Information about national PA recommendations retrieved and reviewed. Links to national PA recommendations checked, available official PA recommendations documents downloaded
November 2019	Extraction of data on (a) participants of development process, (b) methods implemented, and (c) sources/basis of national PA recommendations
December 2019	Template sent to PA Focal Points of five case study countries; guiding questions include (i) details on process participants, (ii) details on methods employed and rationale for choosing them, (iii) details on development process and timeline, (iv) details on main source documents used for recommendation development
January 2020	Data analysis and synthesis
March 2020	Review of case studies by PA Focal Points

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3 1 *Table 2. National PA recommendations development methodology (based on national PA*  
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5 2 *recommendation documents identified by National PA Focal Points in 2018 EU/WHO*  
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7 3 *questionnaire monitoring the implementation of the EU Council Recommendation on HEPA*  
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9 4 *across Sectors)*

	AUT	BEL	CRO	DEU	FIN	FRA	GRE	IRE	ITA	LVA	LTU	LUX	MAT	NET	SVK	SVN	SPA	UNK
<b>Publication format</b>																		
Recommendations published in dedicated document	X	X		X	X			X	X	X	X			X			X	X
<b>Authorship</b>																		
Published/approved by government organization	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X
Prepared by organized working group	X	X		X		X	X	X						X			X	X
Participation or review by international experts	X			X		X												X
<b>Methods</b>																		
Working group meetings	X			X		X	X							X				X
Stakeholder consultation						X		X										X
Literature review		X		X		X	X	X			X		X	X				X
Analysis of other nat'l/int'l recommendations	X	X		X		X	X	X					X	X			X	X
Adoption of WHO 2010 recommendations			X			X			X	X		X			X	X	X	
<b>Basis for recommendations</b>																		
WHO 2010 PA recommendations		X	X	X		X			X	X	X	X			X	X	X	X
other nat'l/int'l recommendations	X	X		X	X	X	X	X					X	X				X
information from literature review		X				X		X			X			X				X

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Table 3. Comparison of methodological approaches for selected countries

	<b>Austria</b>	<b>Germany</b>	<b>France</b>	<b>The Netherlands</b>	<b>United Kingdom</b>
<b>Lead institution</b>	Austrian Health Promotion Fund (Fonds Gesundes Österreich, FGO). FGO is a division of the Austrian National Public Health Institute (Gesundheit Österreich GmbH, GÖG), a corporation fully owned by the Austrian Ministry of Health.	Ministry of Health	Directorate General for Health	Health Council of the Netherlands	Department of Health, England
<b>Size and composition of the expert group</b>	<p><i>Members:</i> n=14 (plus additional invited national experts)</p> <p><i>Involved disciplines:</i> sport science, public health, sports medicine, economics, injury prevention, and physical activity</p> <p><i>Involved institution types:</i> universities, universities of applied sciences, specialist societies, health promotion organizations, and NGOs</p> <p><i>International experts:</i> n=3</p>	<p><i>Members:</i> n=16</p> <p><i>Involved disciplines:</i> sport science, sports medicine, and physical activity promotion</p> <p><i>Involved institution types:</i> universities</p> <p><i>International experts:</i> n=2</p>	<p><i>Members:</i> n= 12</p> <p><i>Involved disciplines:</i> sociology, epidemiology, physiology, clinical medicine, biology, psychology and public health</p> <p><i>Involved institution types:</i> universities, universities of applied sciences, universities of physical activity with a particular focus on expertise covering the epidemiological evidence on health benefits of physical activity</p> <p><i>International experts:</i> n=1 (in the scientific committee of the Institution)</p>	<p><i>Members:</i> n=14</p> <p><i>Involved disciplines:</i> sport science, exercise physiology, social science, public health and epidemiology</p> <p><i>Involved institution types:</i> universities, university of applied sciences and national research institutes</p> <p><i>International experts:</i> n=0</p>	<p><i>Members:</i> n=15 (plus additional invited national experts for working groups for early years (0-5) and sedentary behavior)</p> <p><i>Involved disciplines:</i> physical activity, with a particular focus on expertise covering the epidemiological evidence on health benefits of physical activity</p> <p><i>Involved institution types:</i> universities, universities of applied sciences, national research institutes, health promotion organisations, and Government Departments</p> <p><i>International experts:</i> n=3</p>
<b>Main steps of the development process</b>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Literature review: recently published, well-documented national guidelines from other countries</li> <li>3. Development of draft recommendations</li> <li>4. Review by international experts and discussion with expert group</li> <li>5. Revision of draft recommendations</li> <li>6. Meeting with additional invited national experts</li> <li>7. Fine-tuning and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Systematic literature review: latest national and international PA recommendations.</li> <li>3. Development of evaluation grid for assessing quality of PA recommendation.</li> <li>4. Identification of high-quality recommendations using the evaluation grid.</li> <li>5. Analysis and summary high-quality recommendations content in a draft document.</li> <li>6. Meeting with the entire recommendations' development team and international experts.</li> <li>7. Finalization and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Literature review by individual experts for different population groups.</li> <li>3. Assessment strength of evidence.</li> <li>4. Development of draft recommendations based on reports from different sub-groups.</li> <li>5. Revision of draft recommendations by the entire expert group.</li> <li>6. Review of draft recommendations by extended group of national and international expert.</li> <li>7. Finalization and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Development of review methodology.</li> <li>3. Systematic literature review: PA recommendations from Australia and the US, and additional, recently-published evidence from scientific literature.</li> <li>4. Identification the strength of the evidence.</li> <li>5. Development of draft recommendations.</li> <li>6. Meeting with the entire recommendations' development team</li> <li>7. Finalization and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert working groups.</li> <li>2. Systematic literature review.</li> <li>3. Development of drafts recommendations for different target groups.</li> <li>4. Review of first drafts by all other members.</li> <li>5. Teleconferences to review the evidence and develop revised drafts.</li> <li>6. Scientific consensus meeting with all working groups.</li> <li>7. Revision of recommendations using a web based platform by scientific community, stakeholders and other interested parties.</li> <li>8. Finalization and publication of recommendations.</li> </ol>

<b>Type of evidence review</b>	Other national and international PA recommendations	Other high quality national and international PA recommendations	Single studies and meta-analysis from international scientific and medical literature	Existing PA recommendations from Australia and the US, and additional, recently-published evidence from pooled analyses, meta analyses and systematic reviews of RCTs or prospective cohort studies	<ul style="list-style-type: none"> <li>- recently-published evidence reviews used to construct or update international physical activity guidelines;</li> <li>- additional pooled analyses, meta-analyses and systematic reviews from prospective and RCT research;</li> <li>- and any additional relevant papers identified by the respective expert working group</li> </ul>
<b>Timeline</b>	March 2009 - January 2010	February 2015 - February 2016	November 2013-February 2016	May 2016 - August 2017	June 2009 - summer 2011

For peer review only



# BMJ Open

## The development of national physical activity recommendations in 18 EU Member States: A comparison of methodologies and the use of evidence

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3 **1 The development of national physical activity recommendations in 18 EU**

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6 **2 Member States: A comparison of methodologies and the use of evidence**

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8 *3 Antonina Tcymbal<sup>1</sup>, Peter Gelius<sup>1</sup>, Karim Abu-Omar<sup>1</sup>, Charlie Foster<sup>2</sup>, Stephen Whiting<sup>3, 4</sup>,*  
9  
10 *4 Romeu Mendes<sup>3, 4</sup>, Sylvia Titze<sup>5</sup>, Thomas E. Dorner<sup>6</sup>, Christian Halbwachs<sup>7</sup>, Martine Duclos<sup>8</sup>,*  
11  
12 *5 Jean-François Toussaint<sup>9</sup>, Wanda Wendel-Vos<sup>10</sup>, Beelin Baxter<sup>11</sup>, Susanne Ferschl<sup>1</sup>, Joao*  
13  
14 *6 Breda<sup>4</sup>*

15  
16  
17 <sup>1</sup>Department of Sport Science and Sport, Friedrich-Alexander Universität Erlangen-Nürnberg

18  
19  
20 <sup>2</sup>Centre for Exercise, Nutrition and Health Sciences, School for Policy Studies, University of  
21  
22 Bristol

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24  
25 <sup>3</sup>EPIUnit – Instituto de Saúde Pública, Universidade do Porto

26  
27 <sup>4</sup>World Health Organization, Regional Office for Europe, European Office for the Prevention  
28  
29 and Control of Noncommunicable Diseases

30  
31  
32 <sup>5</sup>Institute of Sports Science, University of Graz

33  
34 <sup>6</sup>Department of Social and Preventive Medicine, Center for Public Health, Medical University of  
35  
36 Vienna

37  
38  
39 <sup>7</sup>Bundes-Sport GmbH, Abteilung Breitensport, Vienna

40  
41 <sup>8</sup> Department of Sport Medicine and Functional Exploration, University Hospital CHU G.

42  
43 Montpied, INRA, UNH, CRNH Auvergne, University of Auvergne, Clermont-Ferrand

44  
45 <sup>9</sup>IRMES (Institut de Recherche bioMédicale et d'Epidémiologie du Sport/INSEP), AP-HP,  
46  
47 Université de Paris

48  
49  
50 <sup>10</sup>National Institute for Public Health and the Environment, Bilthoven,

51  
52  
53 <sup>11</sup>UK Department of Health and Social Care, London

54  
55  
56

57 **24 Corresponding author:**

58  
59 **25 Dr Antonina Tcymbal, e-mail: [antonina.tcymbal@fau.de](mailto:antonina.tcymbal@fau.de)**

1  
2  
3 1 **Abstract**  
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5 2 **Objectives:** The aim of the study is to compare how Member States of the European Union (EU)  
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7 3 develop their national physical activity recommendations and to provide an overview of the  
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9 4 methodologies they apply in doing so. Information was collected directly from the Physical  
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11 5 Activity Focal Points of EU Member States in 2018. Five countries were chosen for detailed case  
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13 6 study analysis of development processes.  
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19 8 **Design:** Cross-sectional survey.  
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24 10 **Participants:** The representatives of the 28 EU Member State governments to the EU Physical  
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26 11 Activity Focal Point Network.  
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31 13 **Outcome measures:** From national documents we extracted data on (a) the participants of the  
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33 14 development process, (b) the different methods used during development, and (c) on which  
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35 15 sources national PA recommendations were based. An additional survey for case study countries  
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37 16 provided details on (i) anonymized information on the participants of development process, (ii)  
38  
39 17 methods employed and rationale for choosing them, (iii) development process and timeline, (iv)  
40  
41 18 main source documents used for recommendation development.  
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47 20 **Results:** Eighteen national documents on physical activity recommendations contained  
48  
49 21 information about development process. The results showed that countries used different  
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51 22 approaches to develop national recommendations. The main strategies were (a) adoption of  
52  
53 23 WHO 2010 recommendations, or (b) a combination of analysis and adoption of other national  
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55 24 and international recommendations and literature review. All of the five case study countries  
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57 25 relied on review processes rather than directly adopting WHO recommendations.  
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**Conclusions:** While there are arguments for the use of particular strategies for PA recommendation development, there is currently no evidence for the general superiority of a specific approach. Instead, our findings highlight the broad spectrum of potential development methods, resources utilization and final recommendations design currently available to national governments. These results may be a source of inspiration for other countries currently planning the development or update of national PA recommendations.

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3 1 **Strengths and limitations of this study:**  
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- 5 2 • This is the first scientific overview of methodological approaches used to development  
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7 national physical activity recommendations.  
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10 4 • The analysis and comparison of methodology and sources of evidence used in  
11  
12 development of national physical activity recommendations in the EU allows to identify  
13 5  
14 main strategies that countries applied and can be highly relevant to researchers,  
15 6  
16 practitioners and policy-makers and to other countries currently planning the  
17 7  
18 development or update of national PA recommendations.  
19 8  
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21 9 • Data were collected by using questionnaire based on the WHO Health-Enhancing  
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23 Physical Activity (HEPA) Policy Audit Tool which provided comparable data for all 28  
24 10  
25 EU countries.  
26 11  
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28 12 • Additional detailed information about development process in five selected case study  
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30 countries were collected through national experts and Physical Activity Focal Points.  
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33 14 • Main limitations of the study include usage data from a broader EU/WHO Europe survey  
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35 therefore some information was not available, not systematically selection of the case  
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37 study counties and a restriction to documents published before April 2018.  
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## 1 **Introduction**

2 Official recommendations (sometimes also referred to as “guidelines”) on the amount of physical  
3 activity (PA) that is necessary to achieve health benefits are one of the important elements of  
4 strategies to reduce inactivity and sedentary lifestyles <sup>1-3</sup>. PA guidelines are statements about  
5 levels of physical activity, based on epidemiological thresholds, where regular PA is associated  
6 with a significantly reduced risk of a range of conditions, diseases and mortality. They usually  
7 reflect a life course approach by age or life stage. PA guidelines are the rubric for setting  
8 population levels of PA for increased physical and mental health and provide benchmarks for  
9 national surveillance. Understanding the landscape for developing national physical activity  
10 guidelines will help identify differences in approaches used by countries and their impact on PA  
11 promotion.

12 The World Health Organization (WHO) published the original version of its Global  
13 Recommendations on PA for Health in 2010 <sup>2</sup> and regularly encourages Member States to  
14 develop their own national recommendations <sup>4-6</sup>. Such recommendations, while not necessarily  
15 effective in directly increasing PA levels in a population <sup>7</sup>, may be particularly useful for  
16 fostering cooperation between government agencies and guiding health promotion professionals  
17 in their efforts to promote PA <sup>8,9</sup>. As such, PA guidelines may support individuals in developing  
18 necessary habits to stay active<sup>10</sup>.

19 Globally, many countries already have national PA recommendations in place and update them  
20 regularly, including most EU Member States <sup>1,11,12</sup>, the United States <sup>9,13</sup>, Canada <sup>14,15</sup> and  
21 Australia <sup>16,17</sup>. Various recent studies have compared the *contents* (recommended frequency,  
22 duration and intensity of PA) of the national PA recommendations in the European region <sup>11,12,18</sup>.  
23 Since 2010, countries have used different *methodologies* and *processes* for developing their PA  
24 recommendations. Available evidence (e.g. from the US, Canada and Australia) suggests that



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3 1 development processes have followed the development stages recommended by Tremblay and  
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5 2 Haskell<sup>19</sup> by including systematic literature reviews, reviews of existing national and global  
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7 3 physical activity guidelines<sup>20,21</sup>, expert working group meetings, consultations with stakeholders  
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9 4<sup>21</sup>, and gathering feedback from the public online (e.g. via the Office of Disease Prevention and  
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11 5 Health Promotion website of the US Department of Health)<sup>9</sup>. While these more  
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13 6 elaborate/participatory processes might help nations to put PA promotion on the national (policy)  
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15 7 agenda, they might require resources (funding, time, availability of qualified specialists) that are  
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17 8 not available in all nations, and also might represent a duplication of existing work. It remains an  
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19 9 open question which of these elements national governments wishing to develop PA  
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21 10 recommendations should consider, especially in countries where resources and capacities are  
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23 11 limited.  
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33 13 This paper aims to provide a comprehensive overview of the main methodological approaches  
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35 14 utilized to draft national physical activity recommendations from the Member States of the  
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37 15 European Union (EU) up until the year of 2018. To our knowledge, this study is among the first  
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39 16 to compare such methodologies across nations. In order to investigate how countries compare in  
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41 17 the development of recommendations, the EU and its PA national Focal Point Network provide a  
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43 18 unique case study in this regard.  
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## 47 20 **Methods**

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49 21 The EU national PA “Focal Points” allow for the systematic, harmonized collection and  
50  
51 22 validation of cross-national data on PA and PA policy. Information on various aspects of PA  
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53 23 policy, including national recommendations, is gathered by these Focal Points under  
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55 24 coordination by the European Commission (EC) with the support of the WHO Regional Office  
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57 25 for Europe. The surveys are conducted every three years based on the Monitoring Framework for  
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1 the European Council Recommendation on promoting Health-Enhancing Physical Activity  
2 (HEPA) across Sectors<sup>3</sup>. Currently, Europe is the only WHO region to have such a network in  
3 place, making it a strong case study to address our research question.

4  
5 Table 1 provides an overview of the steps and timeline employed for our data collection and  
6 analysis. In 2018, the EC and WHO Europe conducted a survey to assess the implementation of  
7 the European Council Recommendation on HEPA across Sectors<sup>3</sup>. The survey tool included  
8 questions about 23 indicators as defined by the “EU Council Recommendation on HEPA across  
9 Sectors”<sup>3</sup> that allow to explore the implementation of HEPA-related policies and actions at the  
10 national level throughout the EU. Data were collected via the EU PA Focal Point Network,  
11 which was founded in 2014 to monitor the implementation of the 2013 EU Council  
12 Recommendations on HEPA across Sectors and to support exchange on PA promotion policy  
13 between countries. Focal Points are PA experts officially nominated by their governments to  
14 support data collection on HEPA monitoring. They usually work in national ministries of health,  
15 ministries of sport or related national agencies, giving them an intimate knowledge of national  
16 PA promotion and policy. Focal Points were asked to complete an electronic questionnaire for  
17 their country. The questionnaire included a set of questions about the availability, addressed  
18 population groups, scientific basis and implementation status of national PA recommendations  
19 (Indicator 1). All 28 countries that were EU Member States at the time completed the  
20 questionnaire and provided information about the development status of their national PA  
21 recommendations, their basis (e.g. other international or national recommendations), and links to  
22 relevant documents. We retrieved the answers to Indicator 1, checked the links to national PA  
23 recommendations and downloaded all available official documents. Documents in languages  
24 other than English or German were translated via Google Translate. We then conducted a

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3 1 detailed comparative analysis of the contents of the different recommendations, which has  
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5 2 recently been reported elsewhere <sup>18</sup>.

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10 4 For the paper at hand, we selected all those publicly available documents for further analysis that  
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12 5 contained information about the processes employed for developing the national PA  
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14 6 recommendations. In doing so, we considered all development processes regardless of the age  
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16 7 group covered, but focused less on documents describing the translation of existing WHO PA  
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18 8 recommendations and more on those covering more elaborate processes of developing national  
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20 9 recommendations from scratch. We extracted and comparatively analyzed data on (a) the  
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22 10 participants of the development process, (b) the different methods used during development, and  
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24 11 (c) on which sources national PA recommendations were based.  
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33 13 The initial analysis showed that the official recommendations documents of five countries  
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35 14 (Austria <sup>22</sup>, France <sup>23</sup>, Germany <sup>24</sup>, The Netherlands <sup>25</sup> and the United Kingdom <sup>26</sup>) contained  
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37 15 dedicated sections with descriptions of the development methodology. As this suggested that  
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39 16 more detailed information on the development processes and their underlying rationale was  
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41 17 readily available for those countries, we selected them as case studies in order to enrich the data  
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43 18 and provide examples of actual procedures successfully employed by governments in the past. A  
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45 19 template was sent to the PA Focal Points of these countries asking them to provide short  
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47 20 structured reports with additional information on their national guideline development process.  
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49 21 This included (i) information about the composition of the development group (including  
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51 22 anonymized information on participants' institutional background, professional perspective and  
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53 23 expertise), (ii) details on methods employed and rationale for choosing them, (iii) details on  
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55 24 development process and timeline, (iv) details on main source documents used for  
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57 25 recommendation development. To facilitate the completion process, we pre-filled the template  
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1 with all the information available from the EC/WHO Europe survey and the official documents.

2 We then brought completed templates into a unified format to increase comparability and

3 supplied them back to the specific Focal Points for final verification.

#### 4 *Patient and Public Involvement*

6 No patient involved.

8 *[Table 1 about here]*

## 10 **Results**

### 11 *Overall analysis*

12 The analysis of Focal Points' answers to the 2018 EC/WHO Europe questionnaire on HEPA  
13 across Sectors showed that official documents with national PA recommendations were available  
14 for 23 EU Member States <sup>1,18</sup>. Five of these were excluded from the analysis, either because their  
15 documents did not contain information about minimum PA recommendations <sup>27,28</sup> or because the  
16 recommendations were presented on websites only and did not contain any information about the  
17 authors or the development process <sup>29-38</sup>. Eventually, 18 EU Member States were included in the  
18 analysis (Austria <sup>22</sup>, Belgium (Flanders) <sup>39</sup>, Croatia <sup>40</sup>, Finland <sup>41-44</sup>, France <sup>23</sup>, Germany <sup>24</sup>,  
19 Greece <sup>45</sup>, Ireland <sup>46</sup>, Italy <sup>47</sup>, Latvia <sup>48</sup>, Lithuania <sup>49</sup>, Luxembourg <sup>50</sup>, Malta <sup>51</sup>, The Netherlands  
20 <sup>25</sup>, Slovakia <sup>52</sup>, Slovenia <sup>53</sup>, Spain <sup>54</sup>, United Kingdom <sup>26</sup>). An overview of the results is presented  
21 in Table 2.

23 *[Table 2 about here]*

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3 1 To begin with, countries chose different publication strategies for their PA recommendations,  
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5 2 with potential implications for the required resources, synergies with other initiatives, and  
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7 3 visibility of the topic on the national agenda. Eleven countries published their national PA  
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9 4 recommendations in the form of dedicated, separate documents, while seven included them in  
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11 5 other documents related more generally to PA and/or health promotion. Croatia <sup>40</sup>, Greece <sup>45</sup> and  
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13 6 Luxembourg <sup>50</sup> combined recommendations on PA and healthy nutrition. The French national  
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15 7 PA recommendations are part of a general document about national PA and physical inactivity  
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17 8 indicators <sup>23</sup>. Other countries included PA recommendations in national action plans or policies  
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19 9 on PA (Slovakia <sup>52</sup>), obesity (Malta <sup>51</sup>), or nutrition and PA for health (Slovenia <sup>53</sup>).

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26 11 Sixteen national documents were published by government organizations. The national PA  
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28 12 recommendations for Finland <sup>41-44</sup> were prepared and published by a private research  
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30 13 organization (UKK Institute) with links to and funding from the national government, and for  
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32 14 Latvia<sup>48</sup>, no information was available about the authors and publishers. In most of the countries,  
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34 15 documents originated from the health sector, while organizations from education, culture, sport  
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36 16 and nutrition were also involved in some cases (Finland<sup>41-44</sup>, France<sup>23</sup>, Spain<sup>54</sup>). Nine countries  
37  
38 17 indicated that special organized working groups composed of national experts were formed to  
39  
40 18 develop recommendations, and four additionally involved international experts in the  
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42 19 development process (Austria <sup>22</sup>, Germany <sup>24</sup>, France <sup>23</sup>, UK <sup>26</sup>).

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49 21 Regarding specific methods and steps used in the development process, Austria <sup>22</sup>, Germany <sup>24</sup>,  
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51 22 France <sup>23</sup>, the Netherlands <sup>25</sup> and the UK <sup>26</sup> mentioned that special working group meetings were  
52  
53 23 organized for each age category in the guidelines (e.g. Under 5s); France <sup>23</sup> conducted interviews  
54  
55 24 with national stakeholders; Ireland <sup>46</sup> held special consultations with other national and  
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57 25 international professionals in the field of PA promotion. The UK <sup>26</sup> used a web-based platform to  
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1 provide an opportunity for the wider scientific community, stakeholders and interested parties to  
2 give their input for the upcoming recommendations.

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4 Nine countries performed a literature review to collect relevant scientific information about  
5 recommended levels of PA. Nine countries analyzed other national and international PA  
6 recommendations. Eight countries explicitly reported the adoption of the WHO Global  
7 Recommendations on PA for Health (2010) as a method to create their own national  
8 recommendations. All in all, the two predominant strategies pursued were (a) a combination of  
9 literature review and analysis of other recommendations (seven countries) or (b) a direct  
10 adoption of existing WHO recommendations without any review of other existing material (six  
11 countries).

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13 Twelve countries reported that their national recommendations were at least partly based on the  
14 WHO 2010 recommendations, whose core statement is that individuals should engage in at least  
15 150 minutes of moderate aerobic PA throughout the week, or 75 minutes of vigorous PA, or an  
16 equivalent combination of both. Other international or national PA recommendations (the United  
17 States (2008), Canada, Australia, Switzerland) were used as a basis for nine countries. Six  
18 countries stated that their recommendations were based on the information gathered from their  
19 literature reviews.

#### 20 21 *Case studies*

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22 The PA Focal Points from all five countries that were selected as case studies agreed to  
23 contribute to the study by verifying the information provided in the pre-filled templates and  
24 completing their country descriptions. General information provided by the PA Focal Points is  
25 presented in the table 3.

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3 1 [Table 3 about here]  
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8 3 The following sections provide the summaries of the specific steps of development processes in  
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10 4 Austria, France, Germany, the Netherlands, and the UK.  
11

12 5  
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14 6 *Austria.* The development process of the Austrian 2010 PA recommendations was commissioned  
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17 7 by the Austrian Health Promotion Fund (Fonds Gesundes Österreich, FGÖ). FGÖ is a division of  
18  
19 8 the Austrian National Public Health Institute (Gesundheit Österreich GmbH, GÖG), a  
20  
21 9 corporation fully owned by the Austrian Ministry of Health (with the Minister acting as president  
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24 10 of the FGÖ). They commissioned the Austrian Public Health Association (ÖGPH) to team up  
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26 11 with the Austrian Society for Sports Medicine and Prevention (ÖGSMP) and the Austrian Sport  
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28 12 Science Society (ÖSG) to develop recommendations for HEPA based on the latest scientific  
29  
30 13 evidence. The development team eventually consisted of 14 researchers with a background in  
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32 14 sport science, public health, sports medicine, economics, injury prevention, and PA promotion  
33  
34 15 from universities, universities of applied sciences, different specialist societies, health promotion  
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36 16 organizations, and non-governmental organizations (NGOs). The development process took  
37  
38 17 place between March 2009 and January 2010. The starting point was a review of recently-  
39  
40 18 published and well-documented PA guidelines from other countries. On this basis, the  
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42 19 development team drafted recommendations and sent them to the three international experts for  
43  
44 20 comments. An updated draft was then discussed at a one-day meeting with the entire  
45  
46 21 development team and two international experts, leading to further revisions. In a half-day  
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48 22 meeting of the working group and 30 national experts, the guidelines were introduced to a  
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50 23 broader academic and professional community and further fine-tuned. The recommendations  
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52 24 were then finalized based on this feedback.  
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1 *France.* The 2016 French PA recommendations were based on a report produced in 2007 by a  
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3 multidisciplinary expert group commissioned by the National Institute for Health and Medical  
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6 2 Research (INSERM), which had systematically reviewed more than 2,000 international research  
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8 3 articles. In 2016, the National Agency of Sanitary Security (ANSES) assembled another group of  
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10 4 experts from sociology, epidemiology, physiology, clinical medicine, biology, psychology and  
11  
12 5 public health in order to update the recommendations of the INSERM group. This process took  
13  
14 6 about 24 months and involved more than 15 meetings. The ANSES group set out by developing  
15  
16 7 a methodology and by conducting a systematic analysis of studies and meta-analysis on PA.  
17  
18 8 Experts from the different disciplines carried out individual searches for different population  
19  
20 9 groups, including children and adolescents, adults, older people, and women during pregnancy.  
21  
22 10 The first step was the systematic analysis of studies and meta-analyses published. The evaluation  
23  
24 11 of the methodological quality and the robustness of the results was assessed using three levels of  
25  
26 12 proof commonly employed in evidence-based medicine (A: Established scientific proof; B:  
27  
28 13 Scientific presumption; C: Low level of scientific proof)<sup>23</sup>. The sub-groups produced individual  
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30 14 reports, which were subsequently synthesized into a set of draft recommendations. These were  
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32 15 validated and elaborated in a collective effort by the entire expert group before being submitted  
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34 16 to an extended group of national and international experts for review. The recommendations  
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36 17 were finalized and published in 2016. They were used to update the 4<sup>th</sup> National Program for  
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38 18 Nutrition and Health (PNNS 2019–2023) and served as a basis for a large-scale communication  
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40 19 campaign for the general population.  
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51 22 *Germany.* The German 2016 PA recommendations were developed under the auspices of the  
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53 23 Federal Ministry of Health. The members of the recommendations development group were  
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55 24 recruited from the ministry's working group “Bewegungsförderung im Alltag” (*PA Promotion in*  
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57 25 *Daily Living*), a permanent advisory board for the implementation of the National Action Plan  
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3 1 "IN FORM – German national initiative to promote healthy diets and physical activity". The  
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5 2 team eventually consisted of 16 researchers from five German universities with a background in  
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7 3 sport science, sports medicine, and PA promotion. The development process took place between  
8  
9 4 February 2015 and February 2016. It was decided to base the recommendations on other high-  
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11 5 quality national and international recommendations for PA. As a first step, a systematic literature  
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13 6 review on the latest international PA recommendations for (a) children and adolescents, (b)  
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15 7 adults and older adults and (c) persons with chronic diseases was conducted. Participating  
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17 8 researchers then developed an evaluation framework covering four domains (scope and target  
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19 9 groups, methodology, level of detail and clarity, and presentation) and 28 individual quality  
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21 10 criteria<sup>55</sup>. Using this framework, the quality of the PA recommendations identified in the review  
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23 11 was then systematically assessed using a four-point scale, and high-quality recommendations  
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25 12 (defined as those reaching at least 60% of the maximum score on each of the four domains) for  
26  
27 13 each target group were identified. The content of these high-quality recommendations was  
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29 14 analyzed and summarized in a draft document. The draft was discussed at a one-day workshop  
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31 15 meeting with the entire development team and two international experts. The recommendations  
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33 16 were then finalized based on this feedback.  
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42 18 *The Netherlands*. The development of the 2017 Dutch PA recommendations was guided by the  
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44 19 Health Council of the Netherlands, which is an independent scientific advisory body whose legal  
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46 20 task is to advise ministers and Parliament in the field of public health and health/healthcare  
47  
48 21 research. The development committee consisted of 14 experts with a background in sport  
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50 22 science, exercise physiology, social science, public health and epidemiology from four  
51  
52 23 universities, one university of applied sciences and two national research institutes. A secretariat  
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54 24 appointed by the Health Council took the lead and main responsibility for drafting the  
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56 25 recommendations. Regular meetings (approx. one per quarter) started in May 2016, and the final  
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1 guidelines were published in August 2017. The Committee built on existing PA  
2 recommendations from Australia and the US, supplementing them with additional recently  
3 published evidence. In order to do so, the secretariat developed a review methodology, which  
4 was discussed and agreed-upon at a meeting of the entire committee. The secretariat then  
5 conducted a systematic literature search limited to pooled analyses, meta analyses and systematic  
6 reviews of RCTs or prospective cohort studies on PA and sedentary behavior. Based on a  
7 decision algorithm<sup>56,57</sup>, it appraised the strength of the evidence available for different thematic  
8 areas and prepared a set of draft recommendations. This draft was discussed, revised and  
9 finalized at subsequent meetings of the committee.

11 *United Kingdom.* Work on the UK 2011 PA recommendations was led by the Department of  
12 Health in England. International and UK Experts were identified and invited to form three  
13 Expert Working Groups (EWG) for children and young people, adults, and older adults,  
14 respectively. Each EWG consisted of three national and one international expert. The  
15 development process took place between June 2009 and summer 2011. Each EWG drew upon  
16 three types of evidence: (1) recently-published evidence reviews used to construct or update  
17 international PA guidelines; (2) additional pooled analyses, meta-analyses and systematic  
18 reviews from prospective and RCT research published since the most recent reviews; (3) and any  
19 additional relevant papers identified by the respective EWG. On this basis, the EWGs collated  
20 the scientific evidence and prepared draft recommendations for new PA guidelines. First drafts  
21 were circulated to all other members of the overall group, and several teleconferences were held  
22 to review the evidence and develop revised drafts. A two-day scientific consensus meeting was  
23 held to review the working papers produced by all EWGs and discuss the draft  
24 recommendations. In order to provide the broader scientific community, stakeholders and other  
25 interested parties with an opportunity for input, a national consultation process was conducted

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3 1 using a web-based platform. The EWGs reviewed and revised their recommendations based on  
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5 2 this feedback. The final individual EWG recommendations were then compiled into the updated  
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8 3 PA guidelines for the UK.  
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## 10 4 11 12 5 **Discussion**

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14 6 Our study aimed to identify the methods used in the development of EU countries national PA  
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17 7 guidelines developed by 2018. Based on the availability of the relevant data, it inevitably comes  
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19 8 with a number of limitations that have to be borne in mind when interpreting our results. For  
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21 9 one, our analysis is based on a broader EU/WHO Europe survey, not on data collected  
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24 10 specifically for this purpose. Thus, despite our best of efforts to verify the available data and  
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26 11 close existing gaps through additional research, some information is missing. Second, our five  
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29 12 case studies are based on a convenience sample of countries for which a certain amount of  
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31 13 information was already available and which had the necessary capacity to provide detailed  
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33 14 descriptions of their development of own recommendations. Selecting case study countries  
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35 15 systematically (e.g. to mirror the full spectrum of population size, economic performance, and  
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38 16 geographical location) would have been more scientifically rigorous but might have exceeded  
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40 17 the capacity of the national PA Focal Points. Finally, our analysis was limited to guideline  
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42 18 development processes conducted before the 2018 round of data collection by the EC and WHO,  
43  
44 19 and more recent and/or currently on-going processes (e.g. in the UK<sup>58</sup>, Italy<sup>59</sup>, Finland<sup>60</sup> and  
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47 20 Austria) were not considered.  
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51 22 These limitations notwithstanding, we believe that our results can make important contributions  
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53 23 to our understanding of national physical activity guideline development and has important  
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55 24 implications for future research and policy. To our knowledge, this is the first study that  
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58 25 analyzed and compared methodology of developing national PA recommendations in the EU  
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1 (and, for that matter, in any group of countries). The data used for the study were collected  
2 directly from EU Member States governments, thus giving us the unique opportunity to assess  
3 situation in an entire region in a comparative fashion. Our results indicate important differences  
4 in these methods, the resources used and in the final recommendations themselves, depending on  
5 whether they primarily used an “adoption” or a “construction” approach, or a mix of both.

6  
7 Most of the analyzed PA recommendations were approved by government organizations, mostly  
8 from the health sector. Sport is part of the portfolio of the national ministry of health in several  
9 EU countries, which may explain this perceived dominance of the health sector. Alternatively,  
10 the health sector may have more resources (and, potentially, a higher vested interest or perceived  
11 obligation) than other sectors to organize the development of national PA recommendations.

12  
13 A closer involvement of organizations from other sectors might help improve guideline  
14 implementation. The formation of dedicated workgroups was a widespread strategy, but it was  
15 not used by all countries. It is particularly interesting to note that only four countries relied on  
16 support by international experts. The results also showed that countries used different  
17 approaches to develop national recommendations. The main strategies were (a) adoption of  
18 WHO 2010 recommendations, or (b) a combination of analysis and adoption of other national  
19 and international recommendations and literature review. However, there seems to be no  
20 discernable pattern as to what “type” of country uses which strategy. One might expect countries  
21 with higher health promotion capacity and more resources to adopt their own standards that  
22 require more resource-intensive approaches, while directly adopting international  
23 recommendations might appear to be the most cost-effective choice for countries with limited  
24 capacities. However, this hypothesis neglects the potential desire of governments to utilize the  
25 development process to put PA on the national policy agenda, and it is not borne out by our

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3 1 results (for example, Italy – one of the largest EU member states with a potentially high health  
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5 2 promotion capacity – chose to directly adopt WHO recommendations, while Malta – one of the  
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7 3 smallest members – conducted a literature review). Regardless of the chosen methodological  
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9 4 approach, none of the documents indicated any recommendations that were developed precisely  
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11 5 taking into account the specifics of the country (e.g. climate, landscape, cultural aspects, etc.).  
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13 6 Taking national context during development process can potentially help to increase uptake of  
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15 7 recommendations.  
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24 9 As mentioned above, the five case studies are not necessarily “typical” for the entirety of  
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26 10 approaches in the EU, as they all relied on review processes rather than directly adopting WHO  
27  
28 11 recommendations. However, the cases add important information to this overall comparison, e.g.  
29  
30 12 regarding the potential composition of guideline development groups, key steps in the process,  
31  
32 13 stages at which to involve external experts, and timeframes that a country should expect when  
33  
34 14 drafting their own recommendations. All five countries formed special expert working groups to  
35  
36 15 develop recommendations, and four of them also asked for advice from international experts.  
37  
38 16 This strategy appears very promising in order to improve the evidence-base of the  
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40 17 recommendations, but it is presumably also resource- and time-consuming: Countries spent  
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42 18 between one and two years to develop and publish their national PA recommendations.  
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47 20 It is interesting to note that countries did not seem to coordinate their development processes  
48  
49 21 internationally, potentially leading to the replication of efforts to review the existing evidence  
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51 22 and to recommendations that closely resemble existing guidelines. However, feedback from our  
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53 23 case study countries indicates that the primary goal of their national literature reviews was not to  
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55 24 come up with new information but (a) to use a sound scientific methodology to justify the  
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1 adoption of existing (e.g. WHO) recommendations and (b) to provide national stakeholders with  
2 working documents in their own language.

3  
4 On the other hand, as we have shown elsewhere <sup>18</sup>, these similar processes still have led to  
5 noticeable differences in national PA recommendations. For example, among the case study  
6 countries, Austria and the UK are completely in line with the 2010 WHO recommendations,  
7 France largely mirrors them but has slight discrepancies for all age groups, Germany uses  
8 WHO's recommendations for adults but different ones for children, and the Dutch guideline  
9 committee does not see a scientific basis for requiring continuous activity periods of at least 10  
10 minutes <sup>18</sup>.

11  
12 To our best of knowledge, there is currently no evidence that a specific strategy produces better  
13 PA recommendations in terms of improved population PA levels or health status, and our  
14 findings seem to point to arguments for both the direct adoption of WHO recommendations and  
15 national-level literature reviews. The former is potentially faster and cheaper, while the latter  
16 may improve the acceptance of guidelines in the national academic and professional community,  
17 may constitute a networking and capacity-building exercise in its own right, and may support the  
18 production of supporting material in the national language. At the same time, the adoption of  
19 specific PA guidelines potentially impacts countries' existing surveillance data (prevalence of  
20 physical activity and trend data) and makes cross-country comparisons within Europe even  
21 harder. Also, in countries where the public tends to be more aware of international  
22 developments, there is a danger that new national recommendations differing from other  
23 countries and WHO Guidelines will increase public confusion and negative press for physical  
24 activity promotion.

## 1 **Conclusion**

2 The information collated in this study may be a source of inspiration for other countries currently  
3 planning the development or update of national PA recommendations. Many EU countries  
4 already have recommendations<sup>18</sup>, but revisions might be warranted in light of the quick  
5 evolution of the evidence base (see e.g. changes regarding aerobic/strength training and 10-  
6 minute bout limits in the new UK and Dutch recommendations, respectively). In general, there is  
7 currently no evidence for the general superiority of a specific strategy to recommendation  
8 development (esp. direct adoption of WHO recommendations vs. literature reviews), although  
9 there are arguments for and against all of them.

10  
11 However, experience from our case studies indicates that more national governments could  
12 consider using intersectoral workgroups and international expert advice. In addition, general  
13 guidelines for the development of public health recommendations have recently been published  
14 (e.g. GRADE-ADOLPMENT framework<sup>61</sup>) and already been applied to the development of  
15 national PA recommendations<sup>62</sup>.

16  
17 In the future, WHO might also be able to play a larger role in facilitating or providing expert  
18 advice. It might want to consider defining “core” elements of its own recommendations for  
19 adoption by Member States, thus increasing standardization while still allowing for adaptation to  
20 national contexts. EU governments in particular might want to consider an even closer  
21 collaboration for future updates of PA recommendations in order to benefit from synergy effects,  
22 e.g. by coordinating literature reviews and building on each others’ previous work. One might  
23 even consider the creation of a joint expert group with academics from all Member States that  
24 could work to regularly update the evidence-base of recommendations. This would allow

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1 countries to focus their efforts on adopting common core recommendations to their specific  
2 national contexts.

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10 From a research perspective, a number of important questions seem to warrant further  
11 investigation: Is it possible to define elements of “good practice” or even standard procedures for  
12 recommendations development, and can the supremacy of certain approaches over others (e.g.  
13 direct adoption of WHO guidelines vs. own literature review) be empirically demonstrated? How  
14 can countries with limited capacity best be supported, and how should countries react when new  
15 global guidelines become available? How important is the process of developing guidelines  
16 itself, not only in terms of the final output but with respect to national capacity building and  
17 agenda setting? In order to answer these questions, there is a need to learn more about  
18 methodologies employed outside of Europe, to compare methodologies globally, and to link  
19 development processes to the quality and impact of resulting recommendations. This might  
20 enable us eventually to define some core elements of a “good” development process, both with  
21 respect to ensuring recognition of the evidence base and to build national capacity for PA  
22 promotion.

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48 publication and they do not necessarily represent the decisions or the stated policy of the World  
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20  
21 9 AT obtained and analyzed national recommendation documents. CF, ST, TD, CH, MD, JFT,  
22  
23 10 WWV, SF and BB provided detailed information about national physical activity  
24  
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41 18 required.  
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1 *Table 1: Steps and timeline of data collection and analysis*

<b>Timeline</b>	<b>Steps</b>
January – March 2018	Joint EC/WHO Europe survey to monitor the implementation of the European Council Recommendation on promoting HEPA across Sectors
February – March 2019	Information about national PA recommendations retrieved and reviewed. Links to national PA recommendations checked, available official PA recommendations documents downloaded
November 2019	Extraction of data on (a) participants of development process, (b) methods implemented, and (c) sources/basis of national PA recommendations
December 2019	Template sent to PA Focal Points of five case study countries; guiding questions include (i) details on process participants, (ii) details on methods employed and rationale for choosing them, (iii) details on development process and timeline, (iv) details on main source documents used for recommendation development
January 2020	Data analysis and synthesis
March 2020	Review of case studies by PA Focal Points

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3 1 *Table 2. National PA recommendations development methodology (based on national PA*  
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5 2 *recommendation documents identified by National PA Focal Points in 2018 EU/WHO*  
6  
7 3 *questionnaire monitoring the implementation of the EU Council Recommendation on HEPA*  
8  
9 4 *across Sectors)*

	AUT	BEL	CRO	DEU	FIN	FRA	GRE	IRE	ITA	LVA	LTU	LUX	MAT	NET	SVK	SVN	SPA	UNK
<b>Publication format</b>																		
Recommendations published in dedicated document	X	X		X	X			X	X	X	X			X			X	X
<b>Authorship</b>																		
Published/approved by government organization	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X
Prepared by organized working group	X	X		X		X	X	X						X			X	X
Participation or review by international experts	X			X		X												X
<b>Methods</b>																		
Working group meetings	X			X		X	X							X				X
Stakeholder consultation						X		X										X
Literature review		X		X		X	X	X			X		X	X				X
Analysis of other nat'l/int'l recommendations	X	X		X		X	X	X					X	X			X	X
Adoption of WHO 2010 recommendations			X			X			X	X		X			X	X	X	
<b>Basis for recommendations</b>																		
WHO 2010 PA recommendations		X	X	X		X			X	X	X	X			X	X	X	X
other nat'l/int'l recommendations	X	X		X	X	X	X	X					X	X				X
information from literature review		X				X		X			X			X				X

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Table 3. Comparison of methodological approaches for selected countries

	<b>Austria</b>	<b>Germany</b>	<b>France</b>	<b>The Netherlands</b>	<b>United Kingdom</b>
<b>Lead institution</b>	Austrian Health Promotion Fund (Fonds Gesundes Österreich, FGO). FGO is a division of the Austrian National Public Health Institute (Gesundheit Österreich GmbH, GÖG), a corporation fully owned by the Austrian Ministry of Health.	Ministry of Health	Directorate General for Health	Health Council of the Netherlands	Department of Health, England
<b>Size and composition of the expert group</b>	<p><i>Members:</i> n=14 (plus additional invited national experts)</p> <p><i>Involved disciplines:</i> sport science, public health, sports medicine, economics, injury prevention, and physical activity</p> <p><i>Involved institution types:</i> universities, universities of applied sciences, specialist societies, health promotion organizations, and NGOs</p> <p><i>International experts:</i> n=3</p>	<p><i>Members:</i> n=16</p> <p><i>Involved disciplines:</i> sport science, sports medicine, and physical activity promotion</p> <p><i>Involved institution types:</i> universities</p> <p><i>International experts:</i> n=2</p>	<p><i>Members:</i> n= 12</p> <p><i>Involved disciplines:</i> sociology, epidemiology, physiology, clinical medicine, biology, psychology and public health</p> <p><i>Involved institution types:</i> universities, universities of applied sciences, universities of physical activity with a particular focus on expertise covering the epidemiological evidence on health benefits of physical activity</p> <p><i>International experts:</i> n=1 (in the scientific committee of the Institution)</p>	<p><i>Members:</i> n=14</p> <p><i>Involved disciplines:</i> sport science, exercise physiology, social science, public health and epidemiology</p> <p><i>Involved institution types:</i> universities, university of applied sciences and national research institutes</p> <p><i>International experts:</i> n=0</p>	<p><i>Members:</i> n=15 (plus additional invited national experts for working groups for early years (0-5) and sedentary behavior)</p> <p><i>Involved disciplines:</i> physical activity, with a particular focus on expertise covering the epidemiological evidence on health benefits of physical activity</p> <p><i>Involved institution types:</i> universities, universities of applied sciences, national research institutes, health promotion organisations, and Government Departments</p> <p><i>International experts:</i> n=3</p>
<b>Main steps of the development process</b>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Literature review: recently published, well-documented national guidelines from other countries</li> <li>3. Development of draft recommendations</li> <li>4. Review by international experts and discussion with expert group</li> <li>5. Revision of draft recommendations</li> <li>6. Meeting with additional invited national experts</li> <li>7. Fine-tuning and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Systematic literature review: latest national and international PA recommendations.</li> <li>3. Development of evaluation grid for assessing quality of PA recommendation.</li> <li>4. Identification of high-quality recommendations using the evaluation grid.</li> <li>5. Analysis and summary high-quality recommendations content in a draft document.</li> <li>6. Meeting with the entire recommendations' development team and international experts.</li> <li>7. Finalization and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Literature review by individual experts for different population groups.</li> <li>3. Assessment strength of evidence.</li> <li>4. Development of draft recommendations based on reports from different sub-groups.</li> <li>5. Revision of draft recommendations by the entire expert group.</li> <li>6. Review of draft recommendations by extended group of national and international expert.</li> <li>7. Finalization and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert group.</li> <li>2. Development of review methodology.</li> <li>3. Systematic literature review: PA recommendations from Australia and the US, and additional, recently-published evidence from scientific literature.</li> <li>4. Identification the strength of the evidence.</li> <li>5. Development of draft recommendations.</li> <li>6. Meeting with the entire recommendations' development team</li> <li>7. Finalization and publication of recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Formation of expert working groups.</li> <li>2. Systematic literature review.</li> <li>3. Development of drafts recommendations for different target groups.</li> <li>4. Review of first drafts by all other members.</li> <li>5. Teleconferences to review the evidence and develop revised drafts.</li> <li>6. Scientific consensus meeting with all working groups.</li> <li>7. Revision of recommendations using a web based platform by scientific community, stakeholders and other interested parties.</li> <li>8. Finalization and publication of recommendations.</li> </ol>



<b>Type of evidence review</b>	Other national and international PA recommendations	Other high quality national and international PA recommendations	Single studies and meta-analysis from international scientific and medical literature	Existing PA recommendations from Australia and the US, and additional, recently-published evidence from pooled analyses, meta analyses and systematic reviews of RCTs or prospective cohort studies	<ul style="list-style-type: none"> <li>- recently-published evidence reviews used to construct or update international physical activity guidelines;</li> <li>- additional pooled analyses, meta-analyses and systematic reviews from prospective and RCT research;</li> <li>- and any additional relevant papers identified by the respective expert working group</li> </ul>
<b>Timeline</b>	March 2009 - January 2010	February 2015 - February 2016	November 2013-February 2016	May 2016 - August 2017	June 2009 - summer 2011

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