



Survey of children living with diabetes, their parents, coaches and sports teachers

Tackling Diabetes with Sport



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International
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I. Introduction & rationale

Sport transcends social and cultural barriers. Its mental, physical, social and economic benefits make it an excellent tool for fostering inclusion. Children, teenagers and young adults diagnosed with diabetes often struggle to continue with their sporting activities in the same way as they did before their diagnosis, while parents, teachers and coaches also sometimes lack the necessary knowledge, training and/or confidence to ensure that children and youths living with diabetes can participate in all sporting activities safely, and to their optimal performance.

To address this, a consortium of sports clubs from five European countries – TSV Bayer Leverkusen (Germany), HAŠK Mladost (Croatia), Lazio Volley (Italy), Olympiacos (Greece), WSC (Austria) – and a Federation representing people living with diabetes (PwD) and healthcare professionals (HCPs), the International Diabetes Federation Europe, have joined forces to enable children and youths with diabetes to practice sport by educating all stakeholders on how to best manage diabetes while practising physical activity and allay any fears that could lead to the exclusion from sport of people living with diabetes.

A publication addresses the main questions and concerns of all key stakeholders – children and youths 25 and under, and their parents as well as coaches and trainers. Disseminating this publication widely will help ensure that people living with diabetes can enjoy equal opportunities and full inclusion in sport. To inform the content of this publication, the Sports & Diabetes consortium first conducted a survey to determine what the key concerns and questions of each one of these stakeholder groups are. This report presents the findings of the survey.



II. Survey development and data cleaning process

II.1 Survey development

The survey was developed by diabetes experts and people living with diabetes. The initial survey was drafted in English and translated into the local languages by the participating sports club in Croatia, Germany, Greece and Italy.

After a first test phase among some 50+ participants, the survey was released in June 2020 and stayed open until September 2022.

II.2 Geographic coverage and dissemination

The survey was disseminated from the participating clubs mainly via social media and direct outreach to their networks. IDF Europe also disseminated the survey through its Member Associations, social media channels on Twitter and Facebook and its Youth Group, YOURAH.

II.3 Data cleaning & response rate

Prior to starting the analysis, the datasets exported from the survey were thoroughly checked and cleaned. The following data were deleted from the final datasets, used in the analysis:

- Duplicate IP addresses if the duplicates recorded exactly the same answers or if the duplicates did not have any answers. This is common when users log off before completing the survey and log on again at another point in time.
- Incomplete answers
- Answers for users who did not provide consent on the use of their data

After data cleaning, a total of 590 responses were included in the analysis. The full demographics breakdown is presented in the Appendix.

II.4 Limitations

The questionnaire was available in five languages online. The ability of people with limited access to internet to participate might have been a limiting factor across some population groups. The actual reach of the study may also have reflected the nature, communication activities and/or strengths of local partner organisations as well as their time availability to promote the survey.

III. Survey analysis

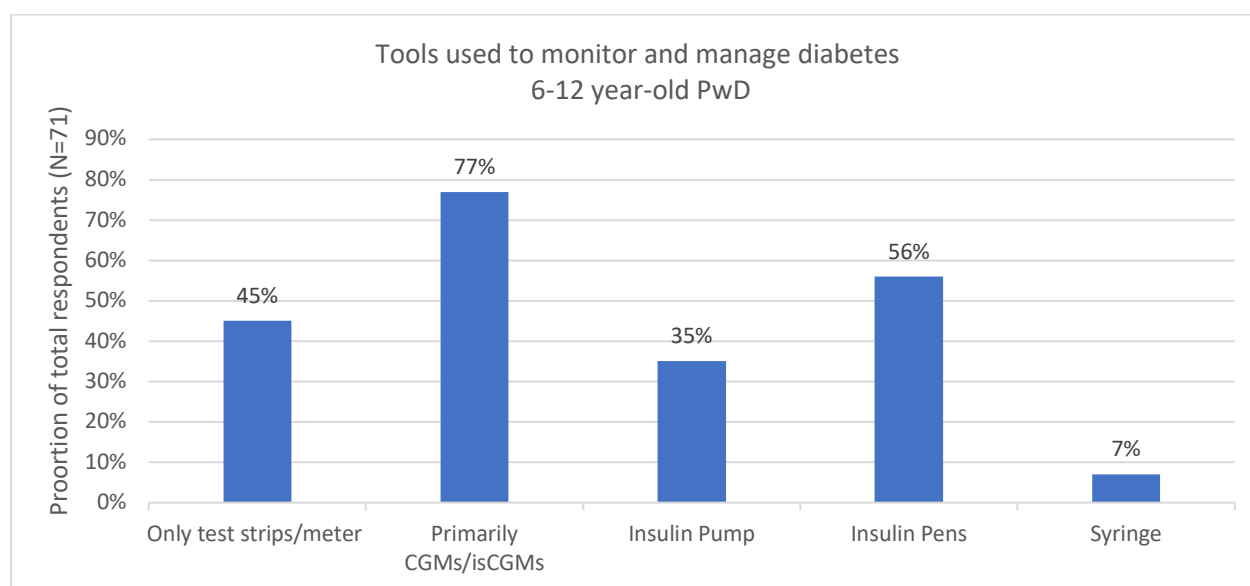
III.1 Young PwD aged six to 12

A total of 71 young PwD six to 12 years old responded to the survey. The survey's main objective for this age group was to understand how they felt in relation to engaging in sporting activities. Some background questions were used to examine whether access to different tools and technologies, or the type of sporting activities had an impact on their attitudes to sport.

III.1.1 Tools used to manage diabetes

Three-quarters of children in this age group used real time (rtCGMs) or intermittently scanned (isCGMs) continuous glucose monitors, and one third were also using insulin pumps.

Figure 3.1 Tools used to monitor and manage diabetes 6-12-year-old PwD



III.1.2 Physical activity levels and the impact of diabetes

Respondents to this survey overwhelmingly practiced sports and more than three-quarters had never been prevented from engaging in physical activities. Nevertheless, diabetes, whether because of its physical or mental impact, was generally the reason that had stopped young PwD from engaging in sport, when they had had not to participate.

Figure 3.2 Proportion of PwD practising sports

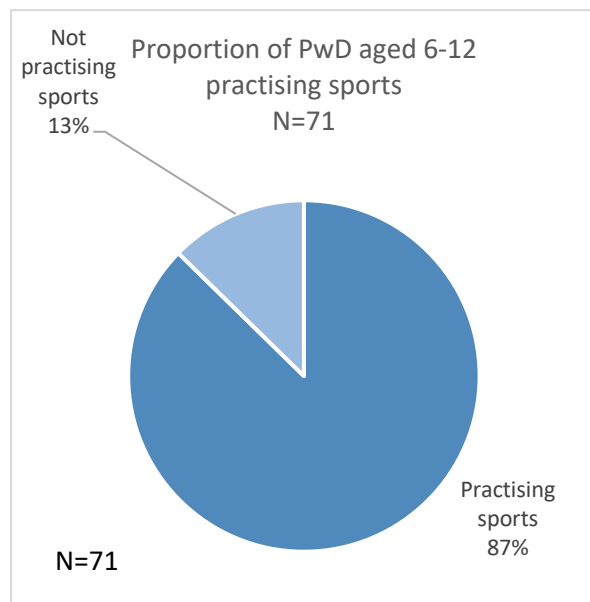
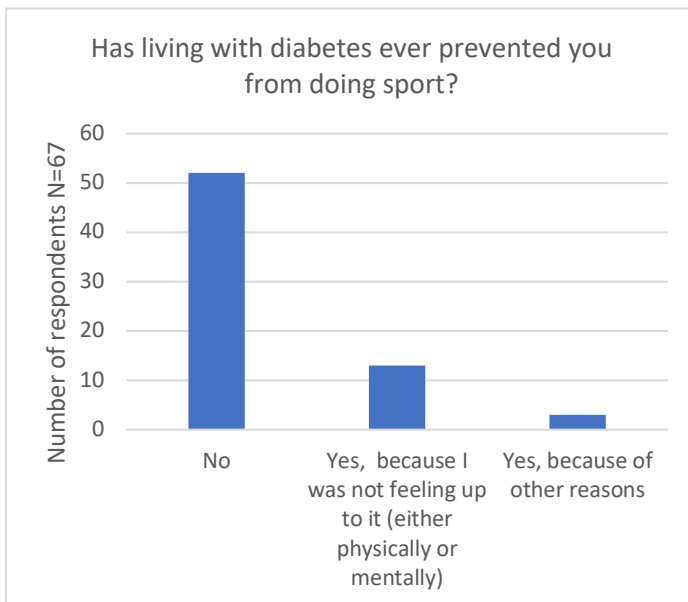
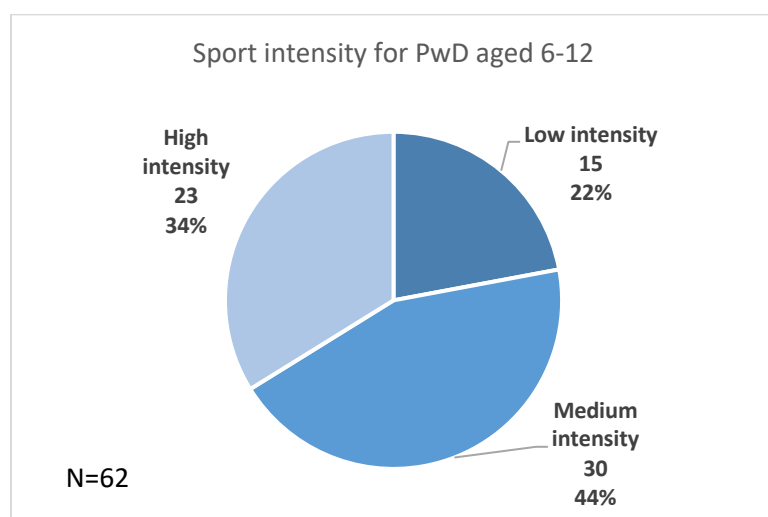


Figure 3.3 Impact of diabetes on participation



Reflecting the fact that well-managed diabetes is not a barrier to participating in sport, one third of children engaged in high-intensity sports.

Figure 3.4 Intensity of sports practiced



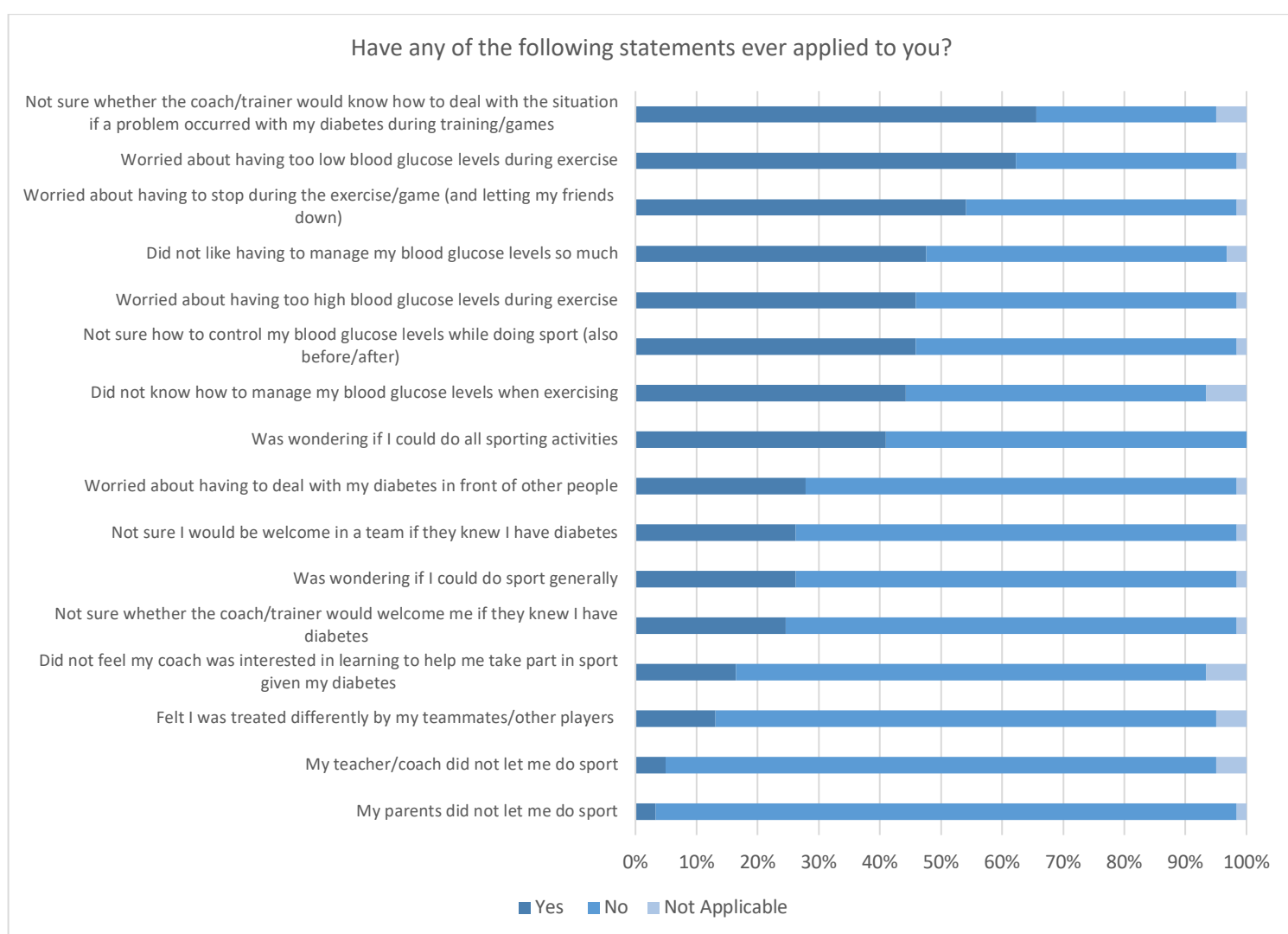


III.1.3 Insights into the concerns and thought process of the young PwD aged 6 to 12

Being unsure whether their coach or trainer would know how to deal with the situation in case an emergency happened and worrying about low blood glucose levels (hypoglycaemia) were the leading concerns among this age group, with 66% and 62% respectively of 6- to 12-year-olds having worried about this.

Letting their team down by having to stop their activity, and dislike of diabetes management itself were the next most prevalent concerns among this age group.

Figure 3.5 Concerns of young PwD 6-12



III.1.4 The COVID-19 pandemic and how it affected participation in sport of PwD aged 6-12

Among this age group, COVID did not seem to be of much concern or have much impact on their daily lives. Although several young PwD mentioned that they were extremely or very concerned about getting infected with COVID-19, a large majority were not very concerned or not at all concerned. A similar pattern was observed when asked about the concern of COVID-19 and diabetes management and about the future impact of COVID-19 on sport activities.

Figure 3.6 Concerns relating to COVID-19 infection

Figure 3.7 COVID-19 and diabetes management

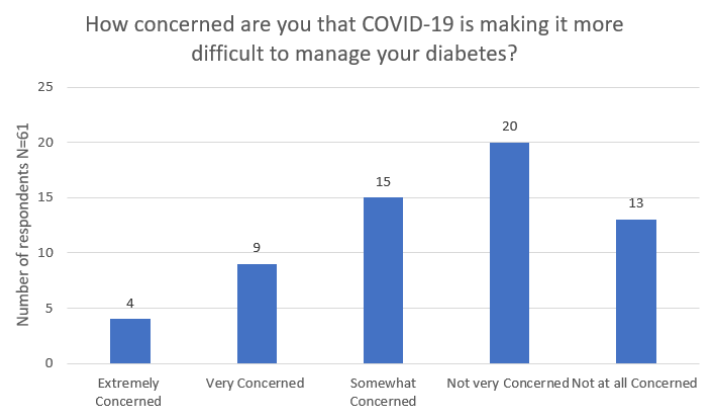
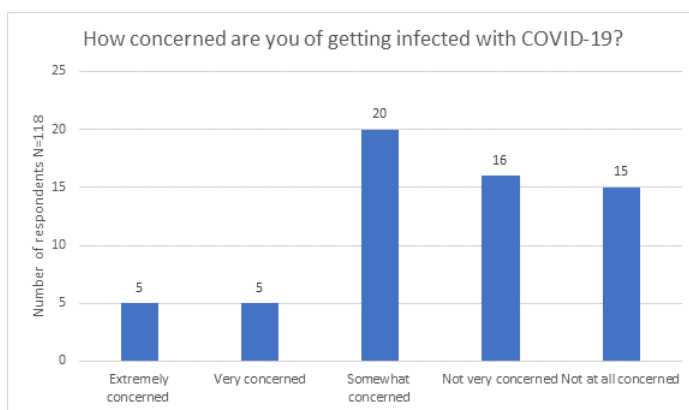
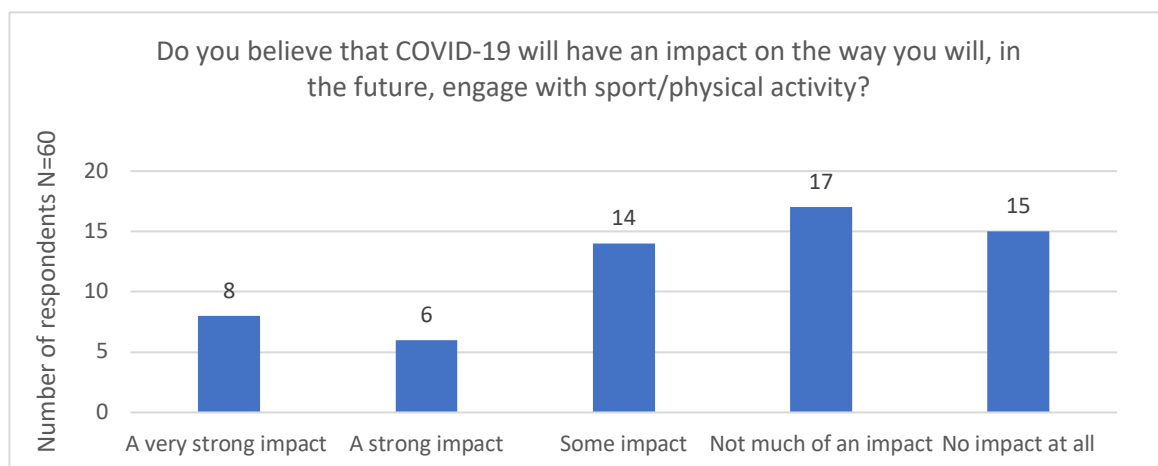


Figure 3.8 Impact of COVID-19 on sports participation

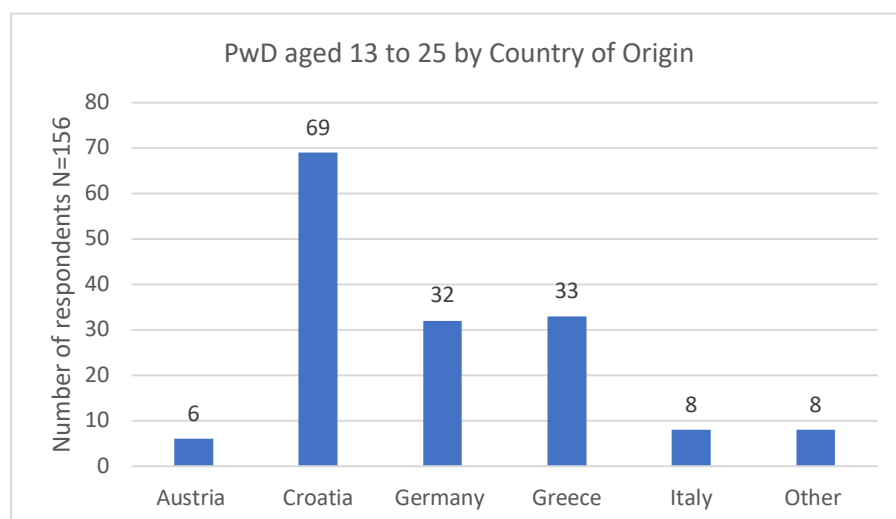


III.2 Young PwD aged 13 to 25

A total of 156 Young PwD aged 13 to 25 answered this survey. The survey's main objective for this age group was to understand how they felt in relation to engaging in sporting activities. Some background questions were used to examine whether access to different tools and technologies, or the type of sporting activities they engaged in had an impact on their attitudes to sport.

Responses for this age group must be seen in light of 41% of respondents coming from Croatia, followed by Greece and Germany with 21% and 19% respectively.

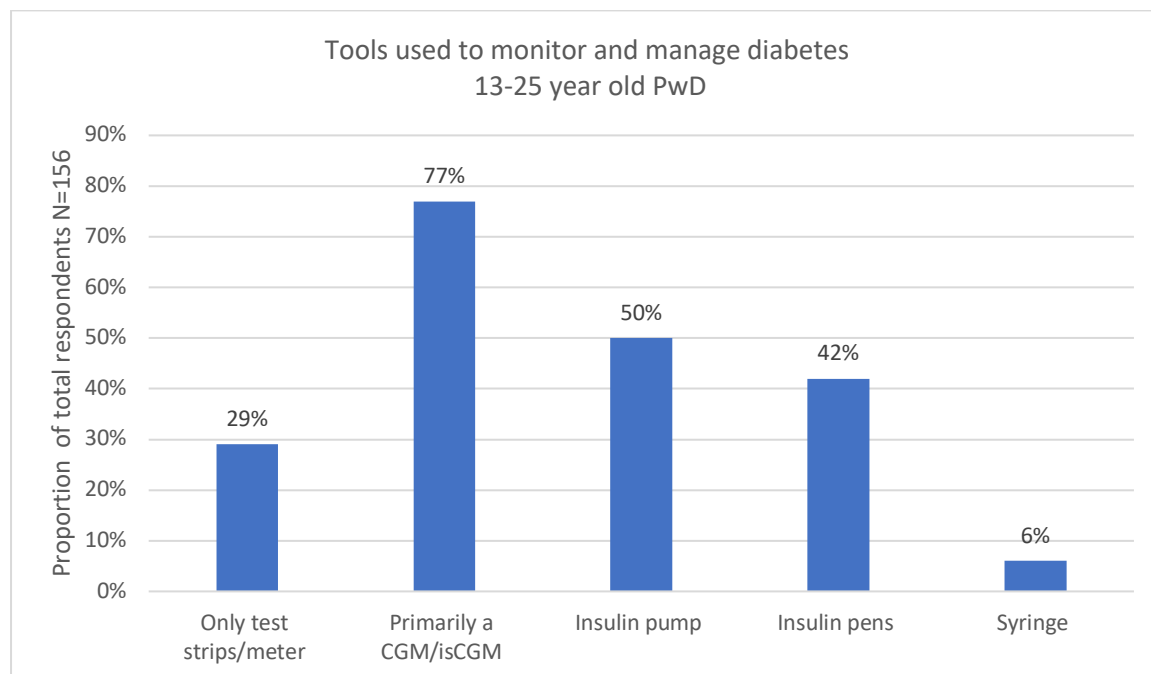
Figure 3.9 Country of Origin PwD 13-25



III.2.1 Tools used to manage diabetes

A higher proportion of young PwD aged 13 to 25 used insulin pumps, compared to the younger age group. Greek respondents had a very different profile to that of other countries, as Greece was the only country where the number of respondents using only test strips and meters was higher than the number using continuous glucose monitors.

Figure 3.10 Tools used to monitor and manage diabetes PwD 13-25



III.2.2 Physical activity levels of PwD aged 13-25 and the impact of diabetes

Compared to the Young PwD aged 6 to 12, a lower percentage of Young PwD aged 13 to 25 reported to practising sports. Diabetes does not seem to be a real barrier to sport participation though. Some 64% of respondents in this age group mentioned diabetes had not prevented them from doing physical activity.

Greek respondents were outliers. A higher proportion of teenagers and young adults were not currently practicing than the proportion that were. Over 55% of the respondents in Greece are currently not practising sports although most of them indicated that they had stopped for reasons other than living with diabetes.

Among those who are currently not practising sports, more than 92% used to practise sports in the past. A large majority amongst those who stopped practising sports mentioned reasons that were not related to diabetes.

Figure 3.11 Participation of PwD in Sport

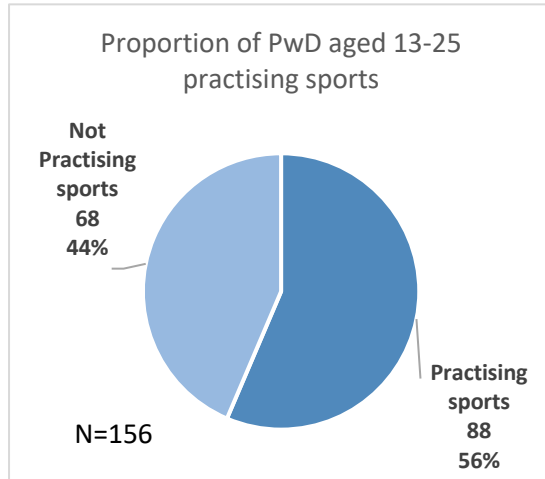


Figure 3.12 Impact of diabetes on participation

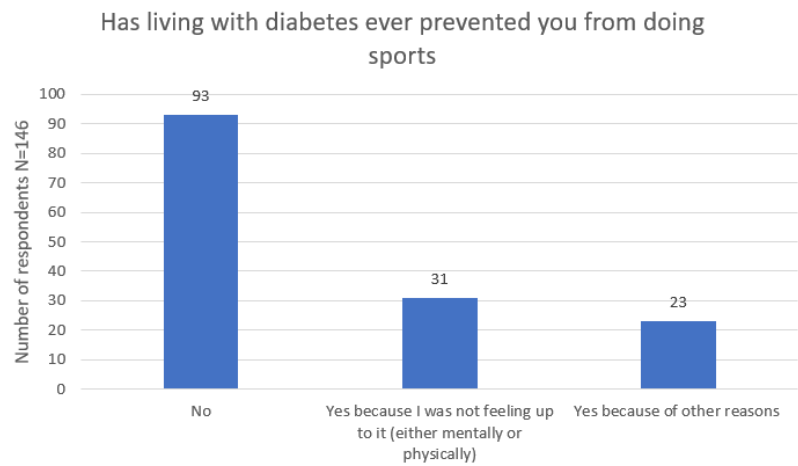
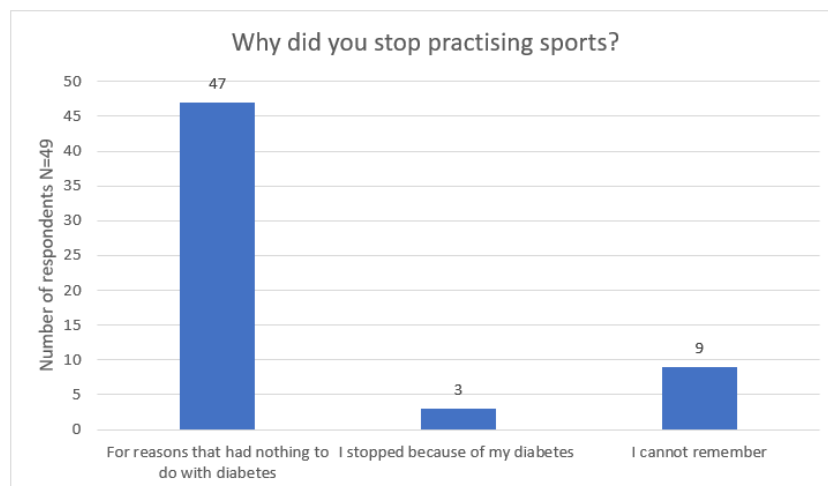


Figure 3.13 Reason for stopping participation in sport

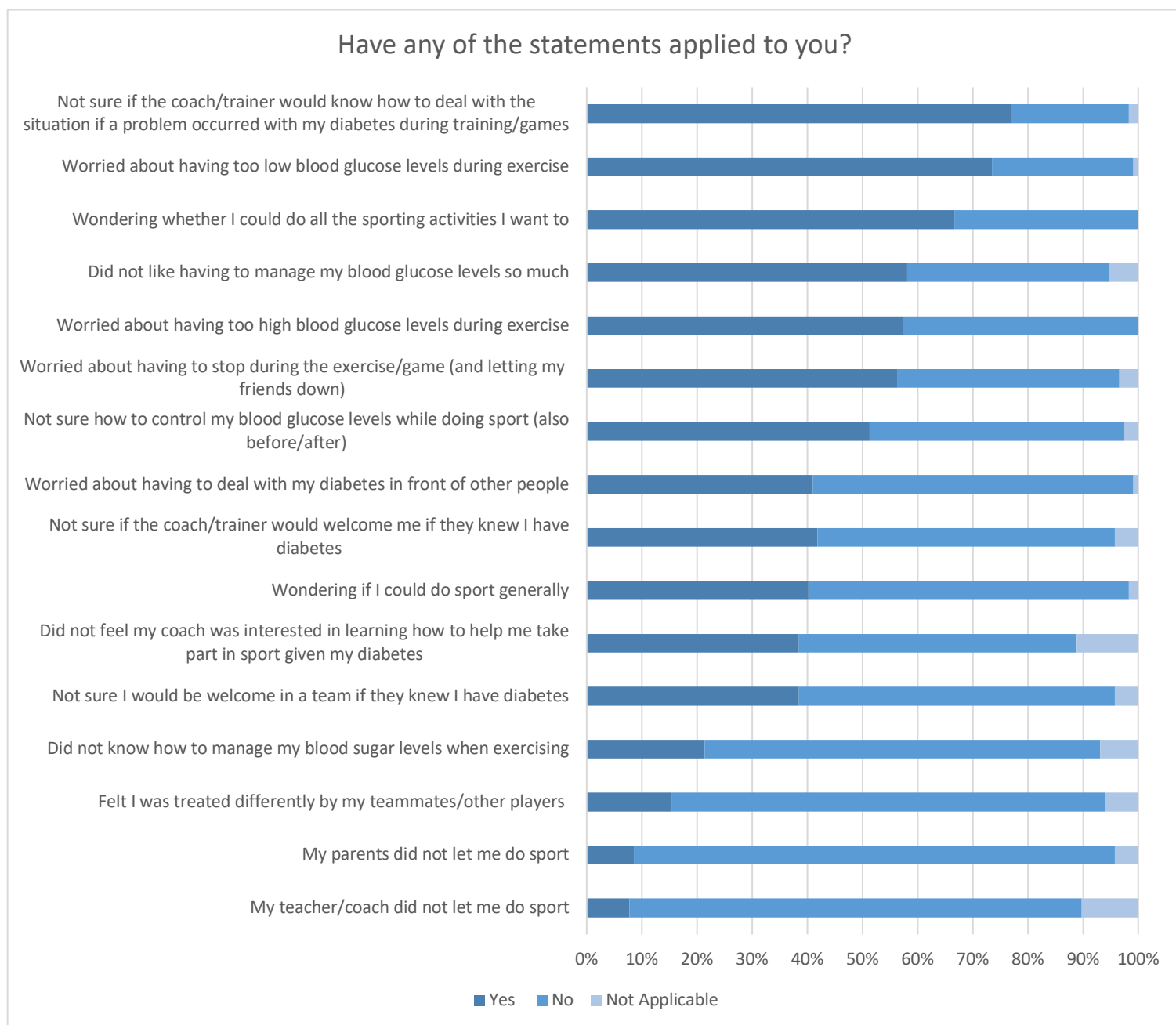




III.2.3 Insights into the concerns and thought process of young PwD aged 13 to 25

Not being sure that the coach would know how to deal with an issue, followed by worrying about hypoglycaemia were the single most important concerns among teenagers and young adults. As with the younger age group, quite a number of people in this respondent group did not like having to manage blood glucose levels so much.

Figure 3.14 Concerns of young PwD 13-25

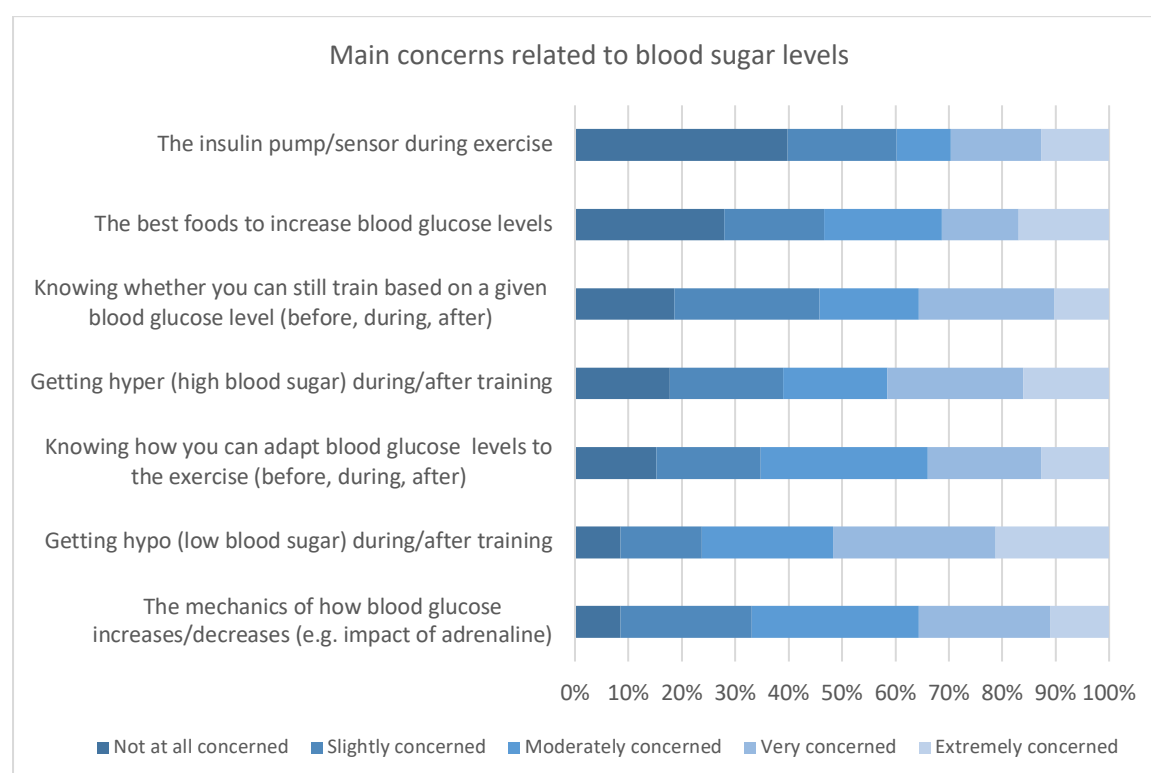


III.2.4 The concerns of PwD aged 13-25 on maintaining adequate blood glucose levels

Having hyperglycaemia or hypoglycaemia during or after training was the biggest area of concern for this category of respondents. The areas of least concern were knowing which foods are the best to increase blood glucose levels and concerns about insulin pumps and sensors during exercise.

The lack of knowledge from teachers and coaches was another common point of concern. Several respondents also mentioned that diabetes management during sport activities is quite stressful and more information on how it affects mental health is needed.

Figure 3.15 Concerns relating to blood glucose levels



III.2.5 The COVID-19 pandemic and how it affected the participation in sport of PwD aged 13-25

Compared to the younger age group of PwD, teenagers and young adults were more concerned by the COVID-19 pandemic. A larger proportion of respondents worried about getting infected with the virus. A larger proportion was also concerned about the impact of COVID-19 on their diabetes management. Nevertheless, overall limited impact was expected in the future as a result of the COVID-19 pandemic.

Figure 3.16 Concerns relating to COVID-19 infection

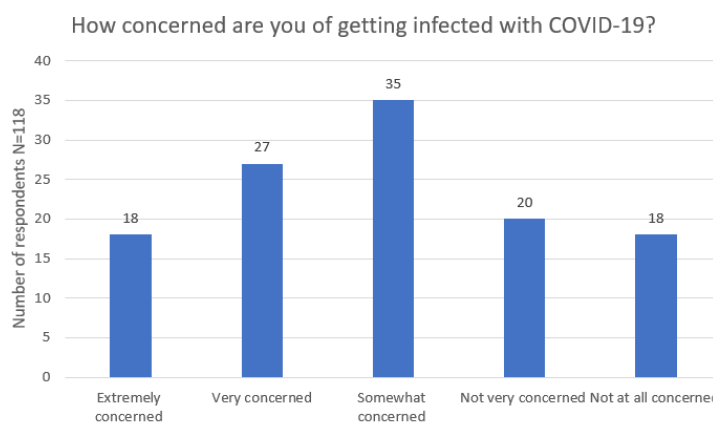


Figure 3.17 COVID-19 and diabetes management

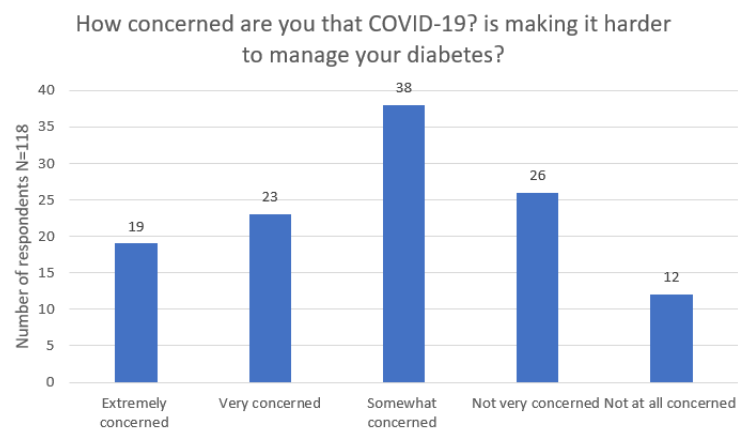
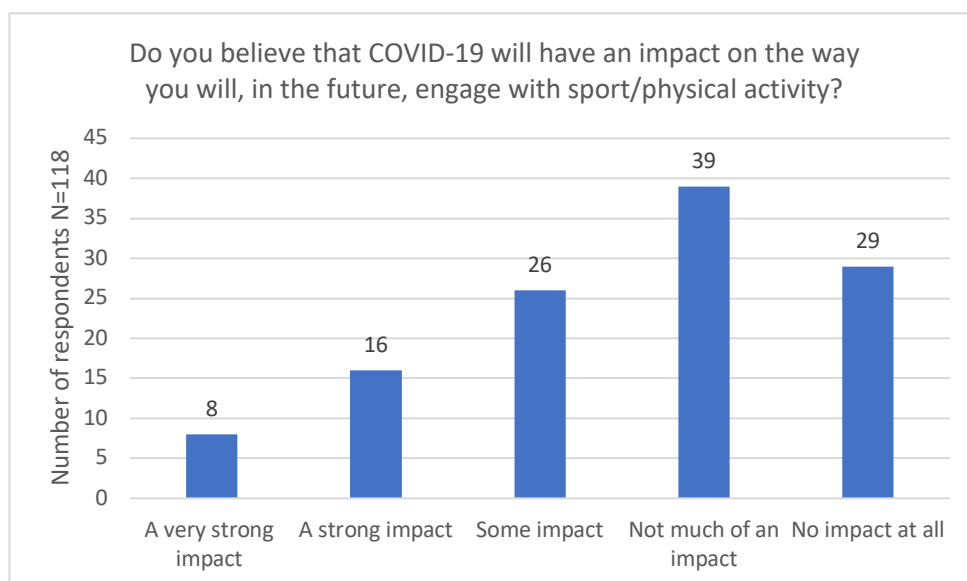


Figure 3.17 Impact of COVID-19 on sports

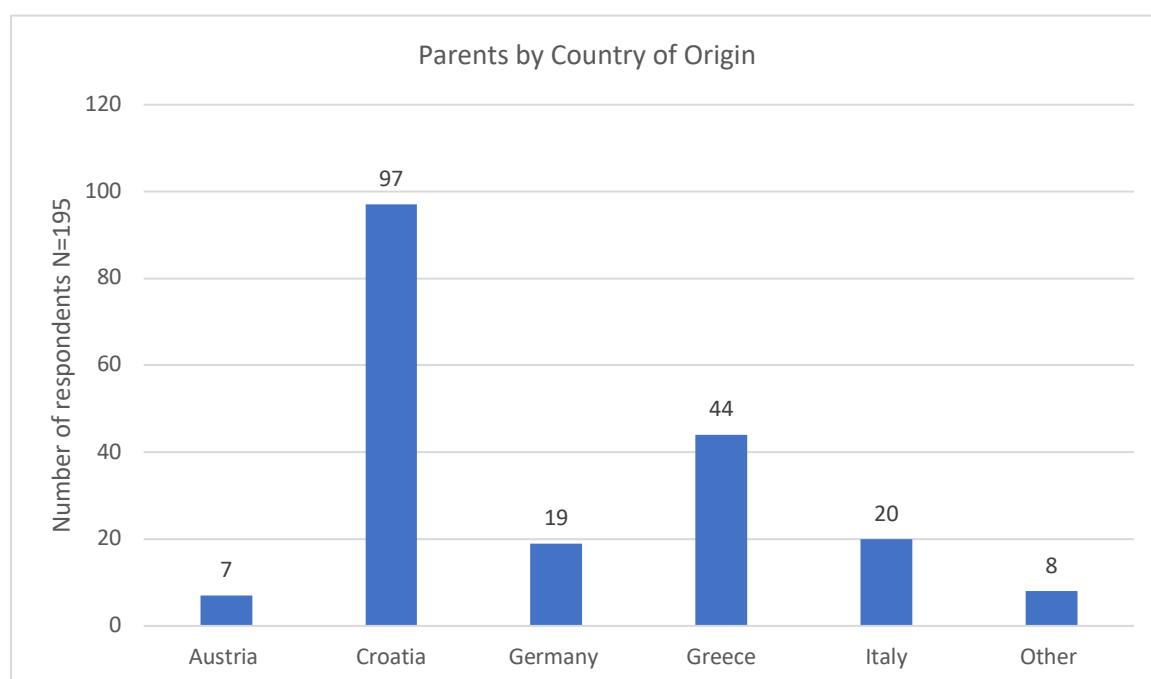


III.3 Parents of children/young people living with diabetes

A total of 195 parents of children living with diabetes responded to the survey. The main focus of this group of respondents was to understand how they felt about their child participating in sport. We also asked the parents to put themselves in their child's shoes to understand what their key areas of concerns are.

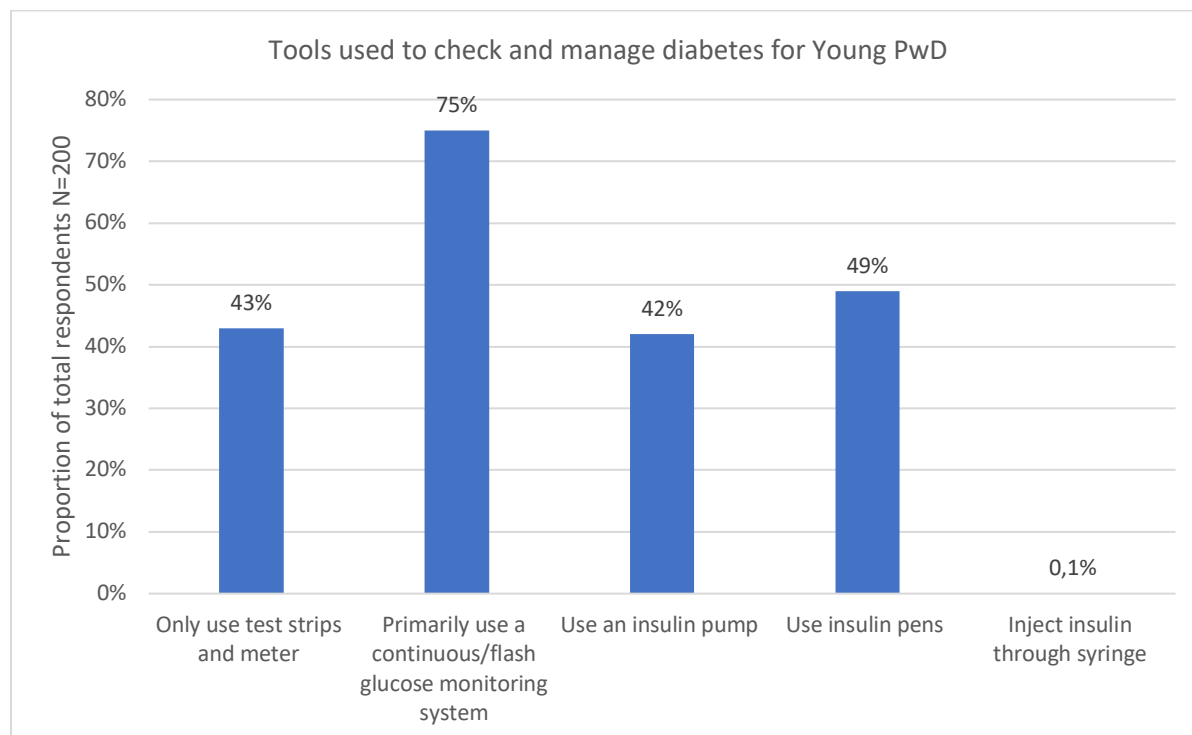
Close to half the responses in this category came from parents in Croatia. With a few exceptions, which are noted later in the report, the answer pattern of respondents in Croatia is similar to that of other countries.

Figure 3.18 Parent's country of origin



Three-quarters of the children whose parents responded to the survey made use of a CGM, and more than 40% had access to an insulin pump.

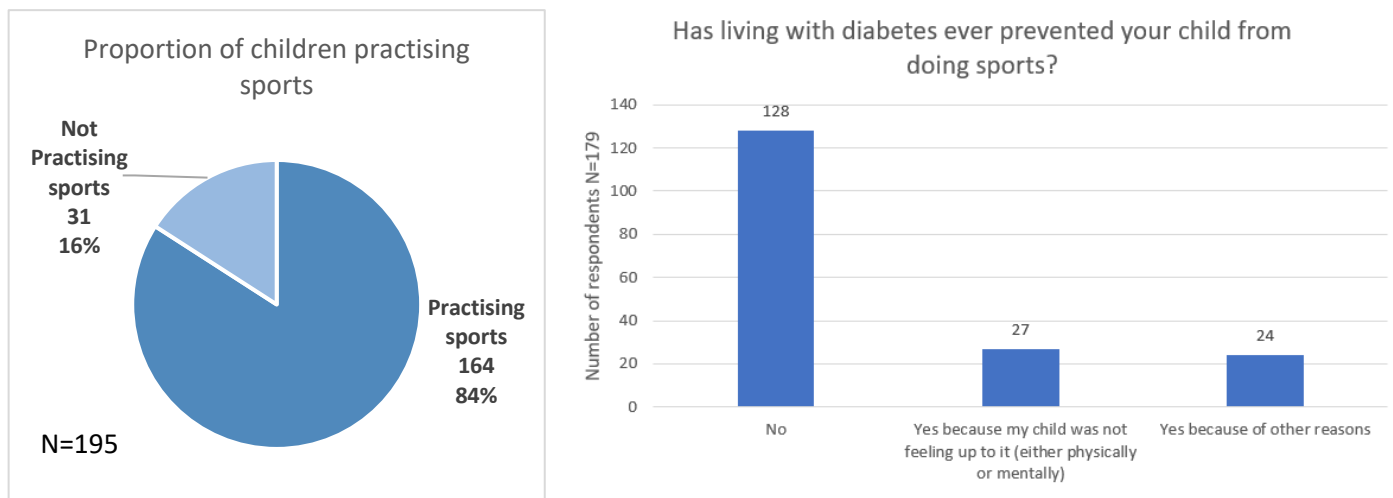
Figure 3.19 Tools used to monitor and manage diabetes for young PwD (parent's answers)



III.3.1 Physical activity levels of young PwD and the impact of diabetes

The vast majority of parents had children practising sports, and only 15% reported that diabetes had prevented their children from engaging in sport.

Figure 3.20 Proportion of PwD practicing sport **Figure 3.21 Impact of diabetes on participation**



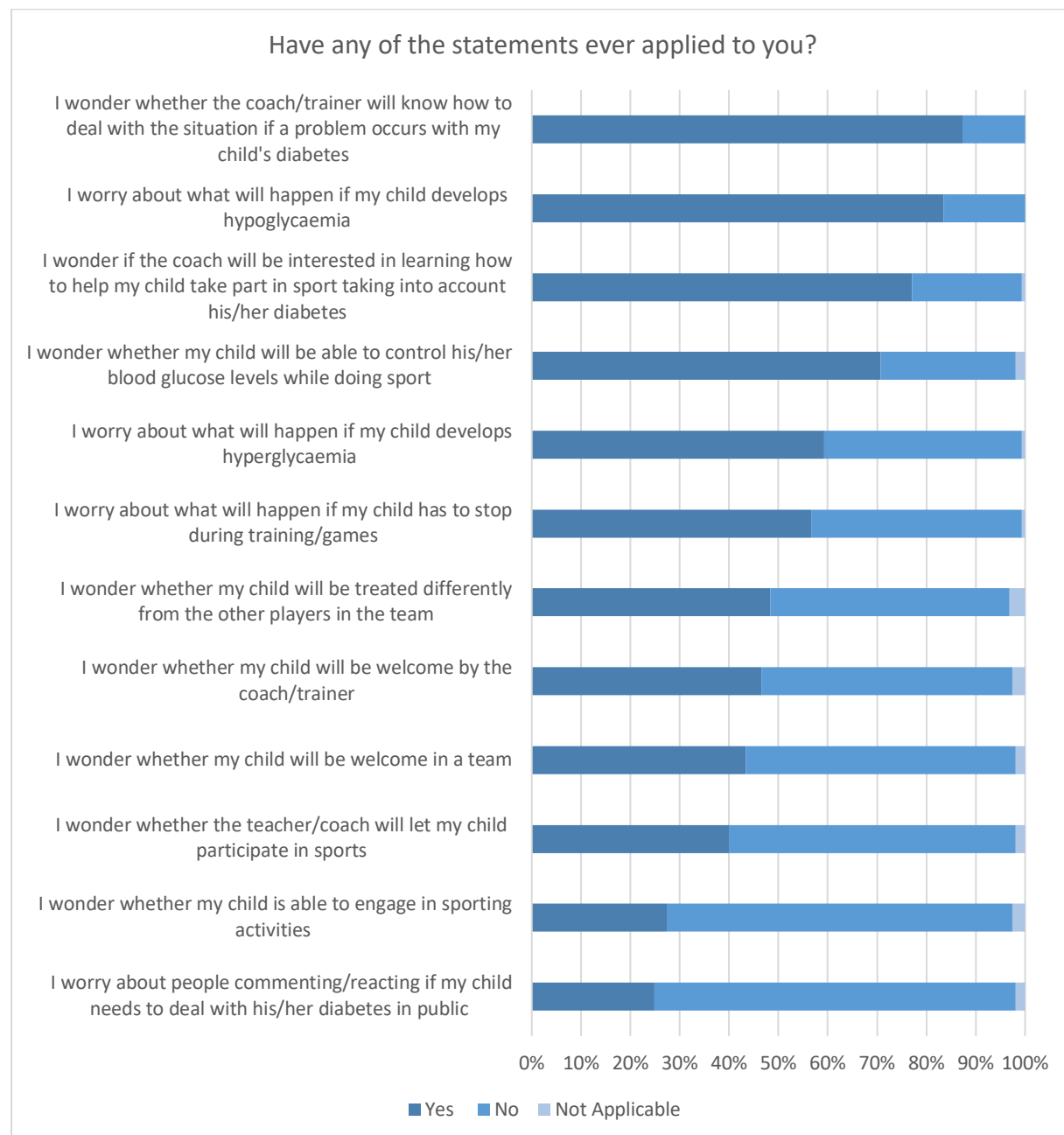
III.3.2 Insights into the concerns and thought process of parents

Outlining the complexity of diabetes management and the potential seriousness of hypoglycaemic events, 87% of the parents responding to the survey wondered if the coach would be able to deal with problems arising from a child's diabetes. This is quite consistent with the main worries of children, teenagers and young adults.

For that matter, the possibility for their child to experience hypoglycaemia was a concern for 83% of parents.



Figure 3.22 Concerns from the parents

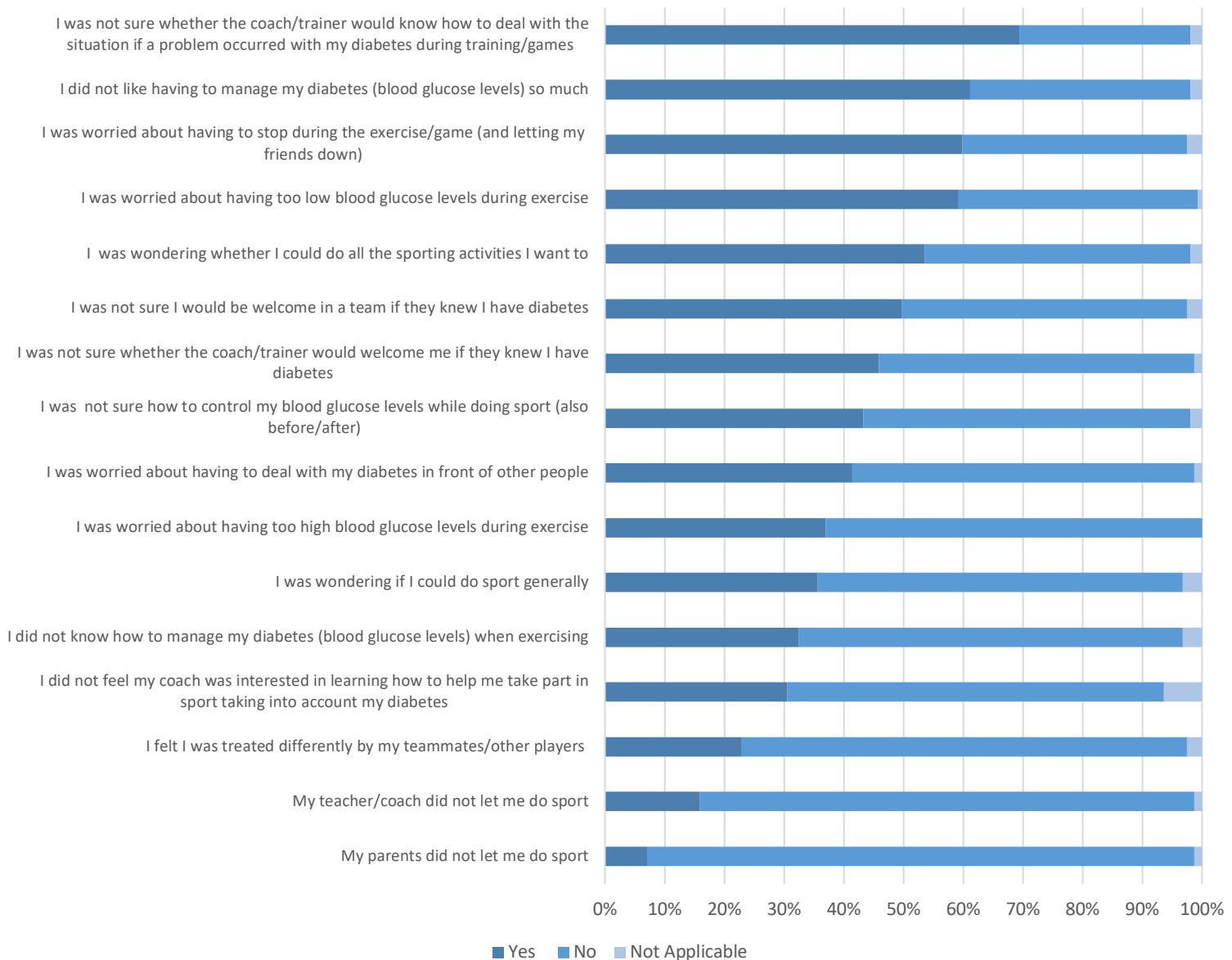




Parents were then asked what they thought their children's main concerns might be. To a certain extent, these reflected their own, although letting friends down and the dislike of diabetes management were slightly higher up the agenda, taking all children and youths together.

Figure 3.23 Concerns from the perspectives of their children

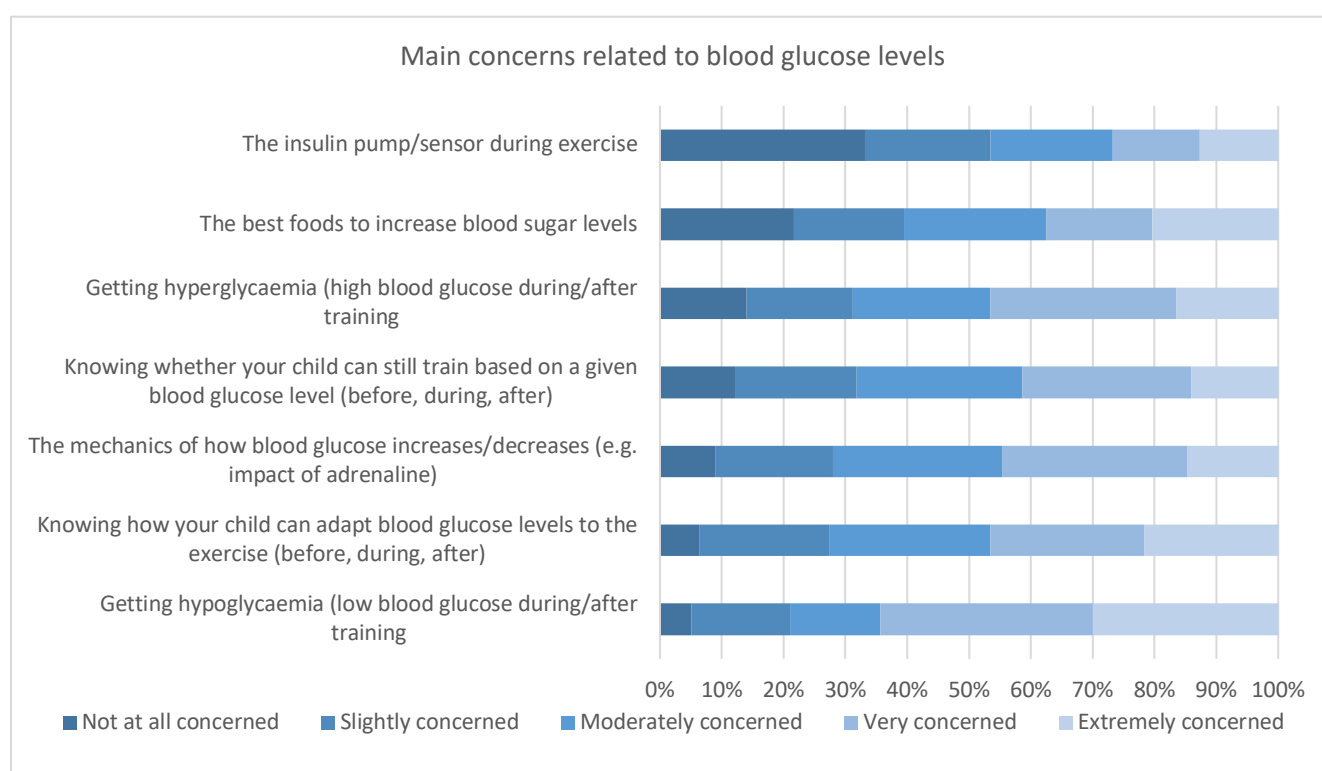
Have any of the following statements ever applied to you?



III.3.3 The concerns of parents on maintaining adequate blood glucose levels for their children

Blood glucose management as a whole during or after training was the biggest area of concern for the parents. The areas of least concern related to which foods are the best to increase blood sugar levels and concerns about the insulin pump or sensor during exercise.

Figure 3.24 Concerns relating to blood glucose levels



III.3.4 The COVID-19 pandemic and how it affected participation in sport of young PwD

The answer patterns concerning COVID-19 were similar to those of the young PwD aged 13 to 25 group. There is a higher proportion of parents that are extremely and very concerned about their child getting infected with COVID-19 and that the virus will make diabetes management harder. However, the majority of parents do not believe that COVID-19 will have an impact on their child's sport activities.

Figure 3.25 Concerns relating to COVID-19 infection

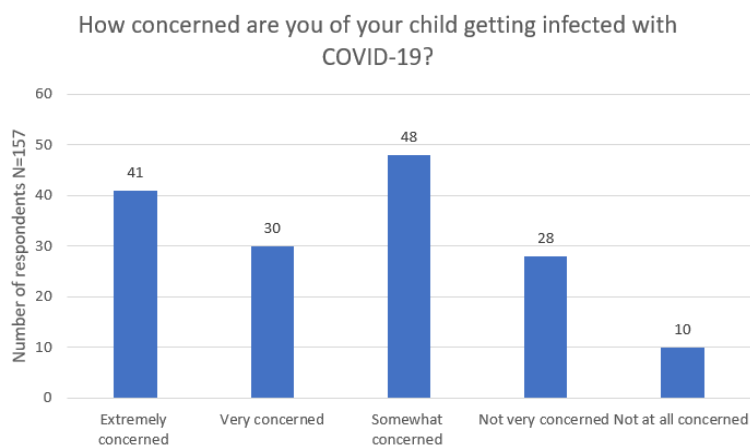


Figure 3.26 COVID-19 and diabetes management

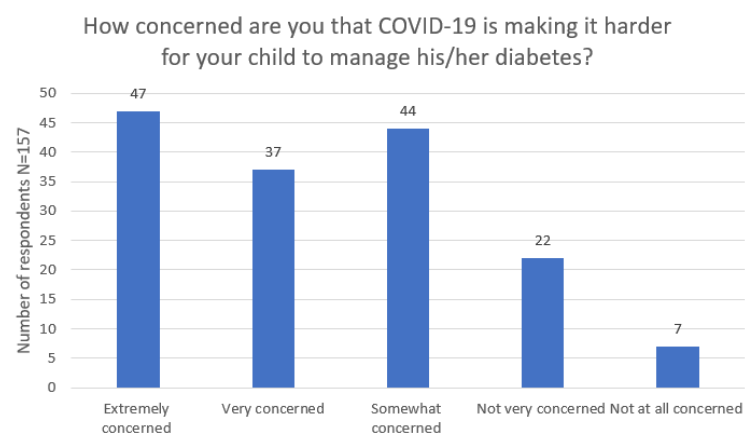
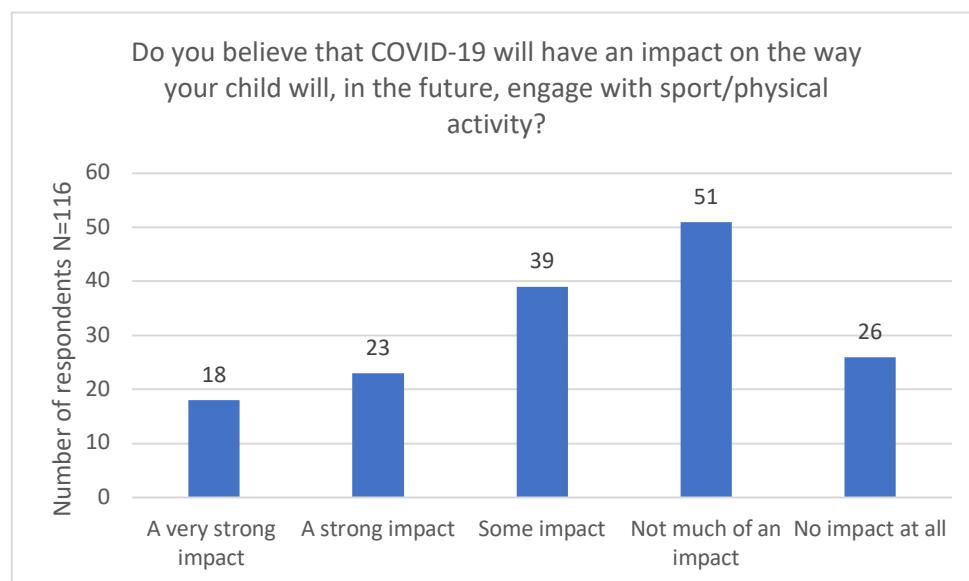


Figure 3.27 Impact of COVID-19 on participation in sports

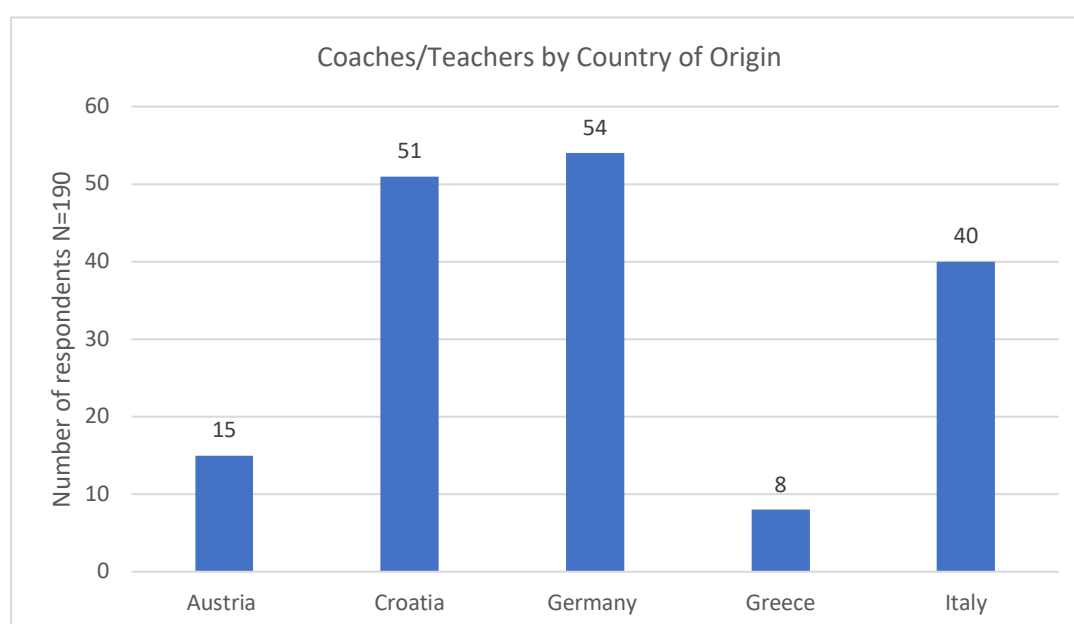


III.4 Coaches, trainers and gym teachers

A total of 168 coaches, trainers and gym teachers (later referred to as “coaches”) responded to the survey. The main objectives of the survey were to evaluate this group’s knowledge of diabetes in general, learn about their understanding of how to handle diabetes and sports, and to examine the questions and concerns they may have when coaching a child/young person with diabetes.

About an equal number of coaches from Germany, Croatia and Italy responded to the survey.

Figure 3.28 Coaches by country of origin



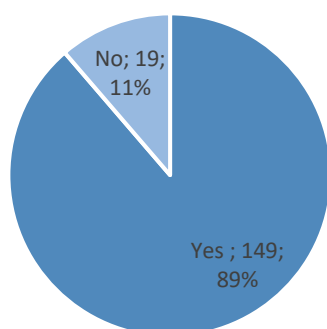
III.4.1 Coaches' general knowledge of diabetes

General knowledge of diabetes among this group of respondents was relatively low. While close to 90% of coaches knew that there are more than one type of diabetes and over 86% knew the management of T1D required insulin injections, the proportion knowing that most children with diabetes live with T1D fell to 43%.

Some 45% of coaches described their knowledge of T1D to be either very poor or poor and 47% of coaches describing their knowledge of diabetes and sport to be very poor or poor, suggesting much education is required to ensure optimal and safe participation.

Figure 3.29 General knowledge of diabetes

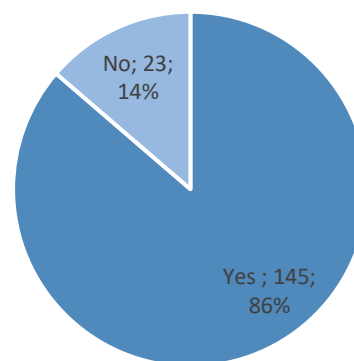
Do you know that there are several types of diabetes, the main ones of which are T1D and T2D?



N=168

Figure 3.30 Knowledge of T1D management

Do you know that the management of T1D requires insulin injections?



N=168

Figure 3.31 Knowledge of T1D and children

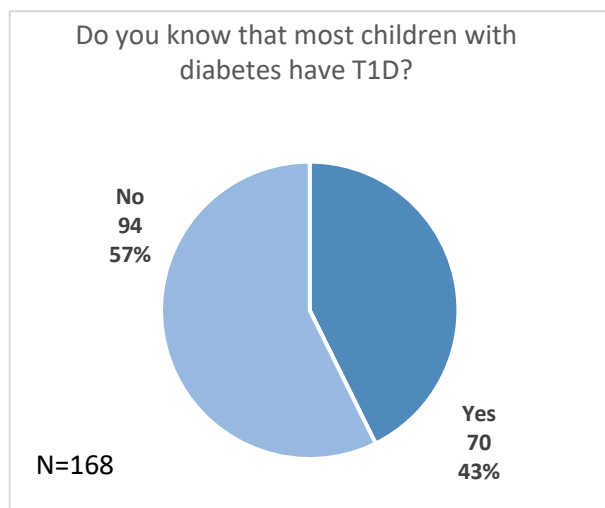


Figure 3.32 General knowledge of T1D

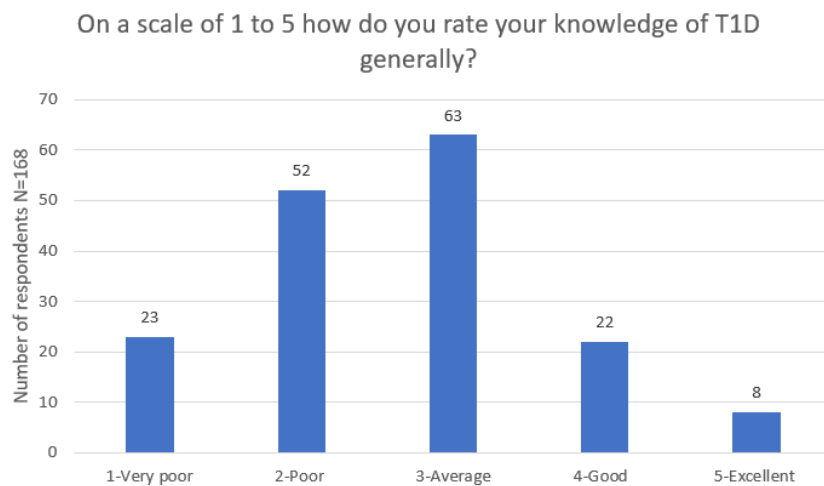
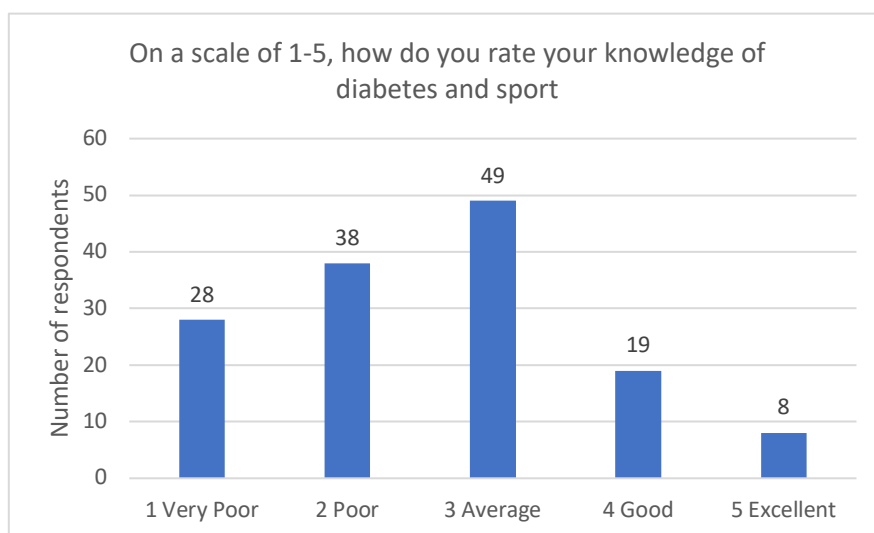


Figure 3.33 Knowledge of diabetes and sports





III.4.2 Concerns of coaches in relation to young PwD

This lack of knowledge did translate into several concerns relating to coaching youths and children. Knowing whether youngsters with diabetes can engage in sporting activities (70%), knowing whether they are able to control their blood glucose levels while doing sports (64%), and knowing what will happen if a young PwD develops hypoglycaemia (62%) were the three biggest area of concern for the coaches.

A high proportion of coaches felt quite confident that they would know how to deal with a problem during practice/games involving a young person living with diabetes. That said, close to 40% reported not being confident about it, suggesting that there is a real need for more education to help coaches better understand diabetes and create a safe environment for young people with diabetes.

Concerns relating to the mechanics of blood glucose levels and insulin pumps were also key areas of interest.

Several coaches commented on the need to gain access training materials. Areas of interest included safety considerations, the effect of hypoglycaemia and hyperglycaemia on a young PwD, the limits of participation in sport for a young PwD, if any, and the long-term considerations for a professional sport career.



Figure 3.34 Concerns of coaches

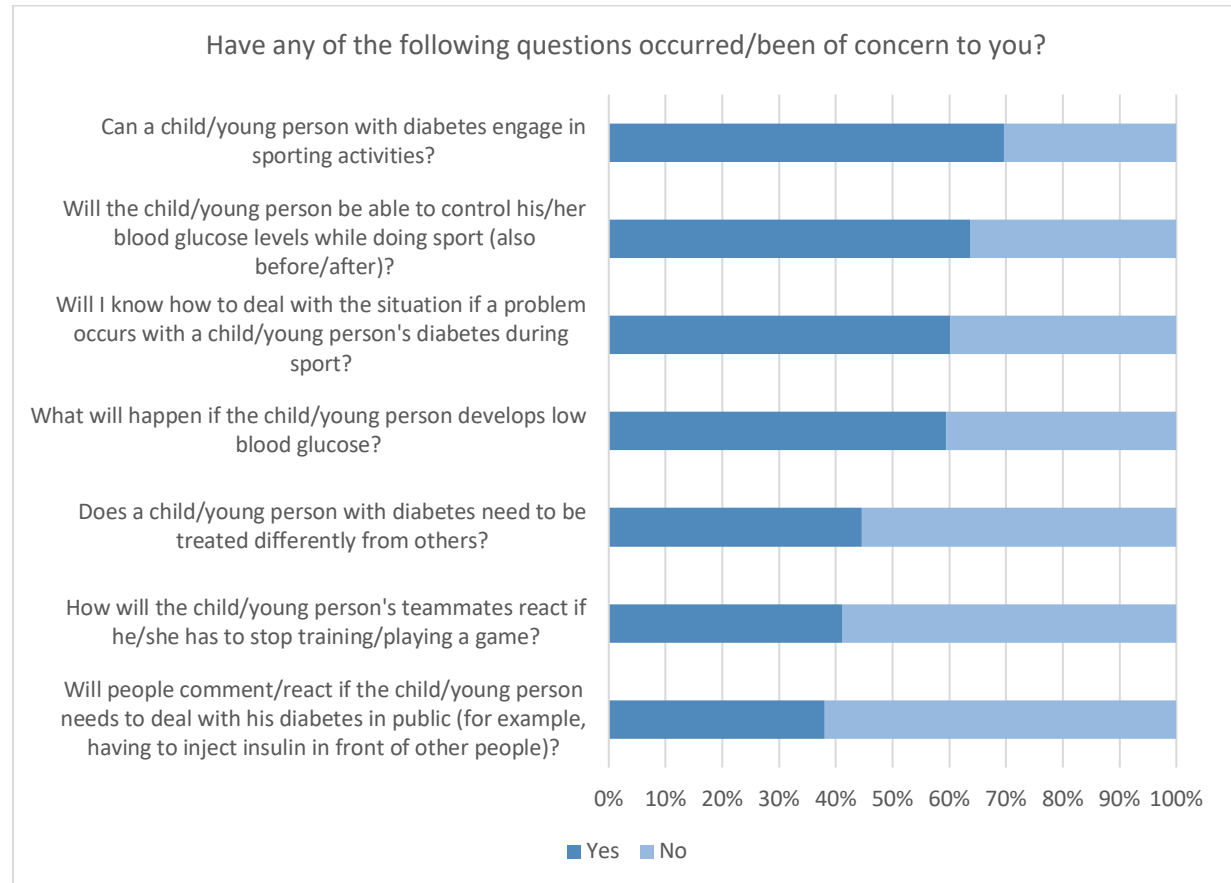
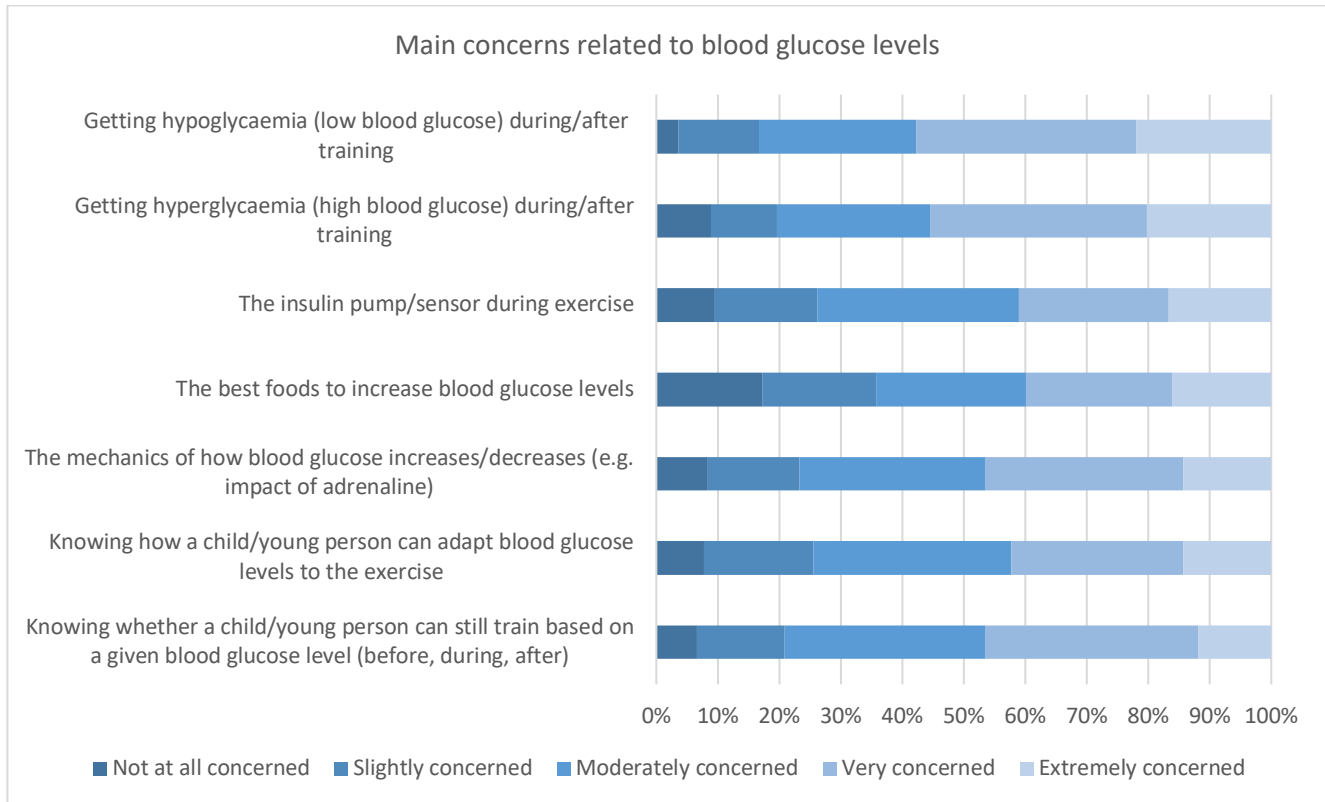


Figure 3.35 Coaches' concerns relating to blood glucose levels





Conclusions

Overall, respondents to this survey did, in the main, continue to participate in sports after their diagnosis, but many expressed a high level of concern relating to their ability to manage their blood glucose levels, and in particular their risk of developing hypoglycaemia.

Children, teenagers and young adults were all concerned about the ability of the coaches/sports teachers to deal with an emergency around sporting activities. This is perhaps, unsurprising, as coaches' self-rated diabetes knowledge was low.

Clearly, more awareness of type 1 diabetes and general education about the best way to manage diabetes before, during and after sport, is required to ensure safe and optimal participation of children, teenagers and young adults.

Appendix – Respondents' profile

This section provides a brief summary on the breakdown of respondents by country of origin and stakeholder group, as follows:

- Children living with diabetes, aged 6 to 12
- Children living with diabetes, aged 13 to 25
- Parents of children living with diabetes
- Sport coaches and teachers

Figure 4.1 Respondent Country of Origin

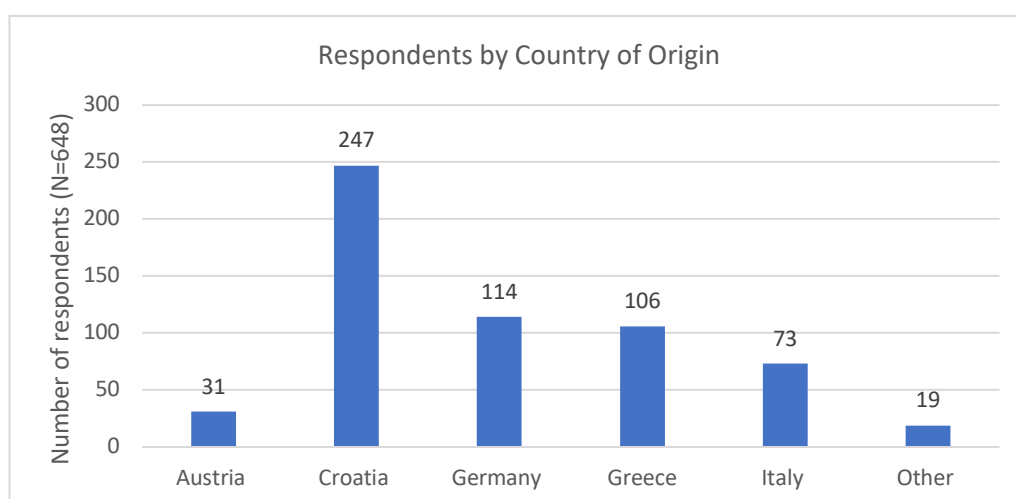
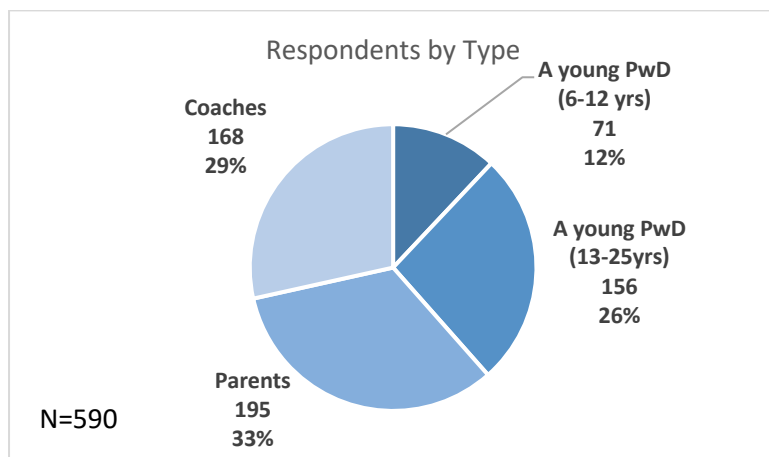


Table 4.1 Respondent country from "Other category"

Country	Number of respondents
Albania	1
Australia	1
Bosnia and Herzegovina	9
Cyprus	1
Ireland	1
Kosovo	1
Montenegro	1
Serbia	3
Switzerland	1

Figure 4.2 Respondents by Type



Respondents – breakdown by country of origin

Figure 4.3 Austria-Respondents by Type

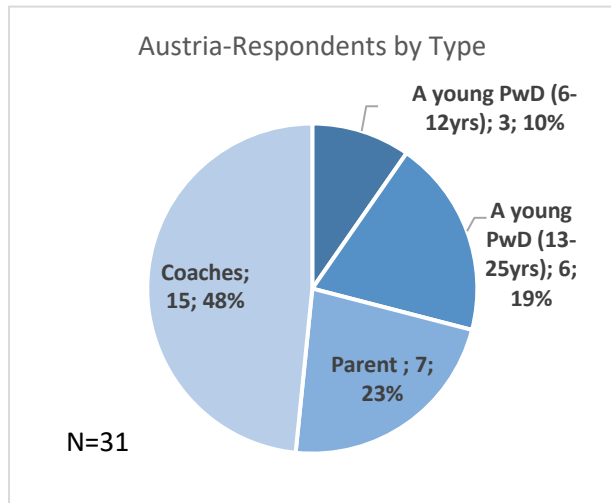


Figure 4.4 Croatia-Respondents by Type

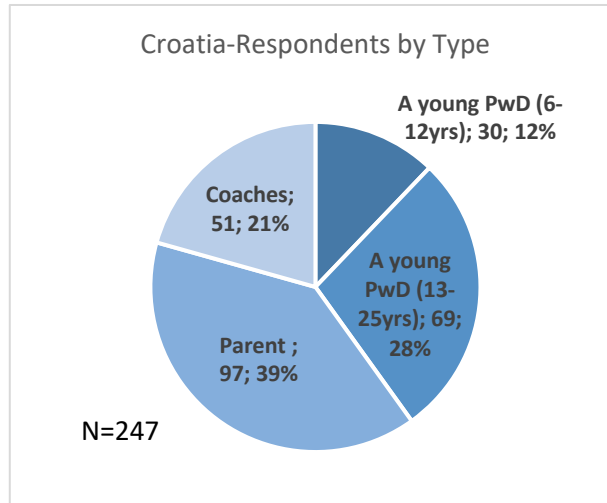


Figure 4.5 Germany-Respondents by Type

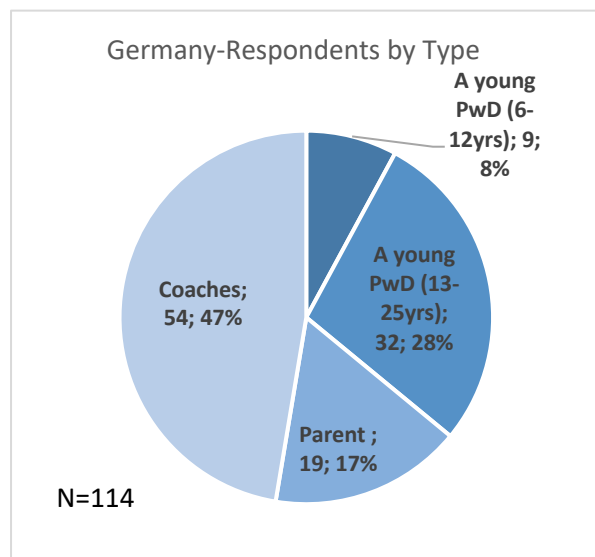


Figure 4.6 Greece-Respondents by Type

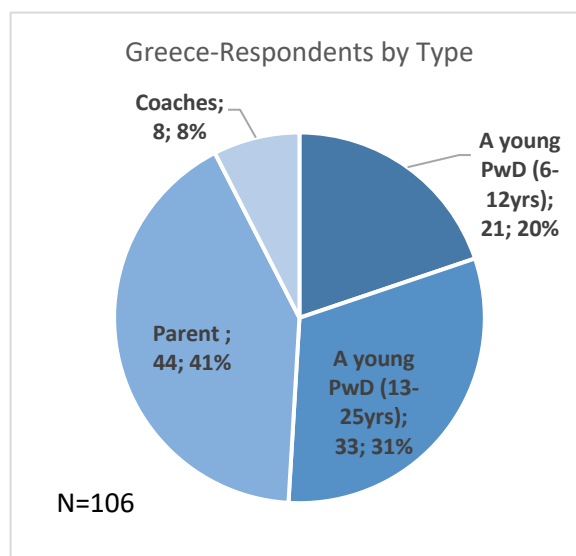


Figure 4.7 Italy-Respondents by Type

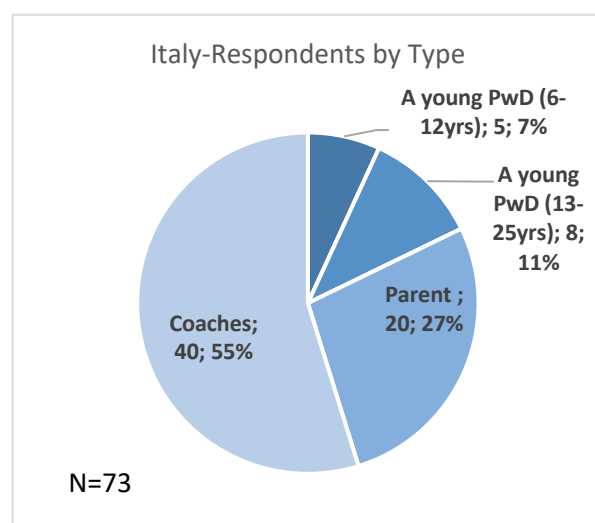
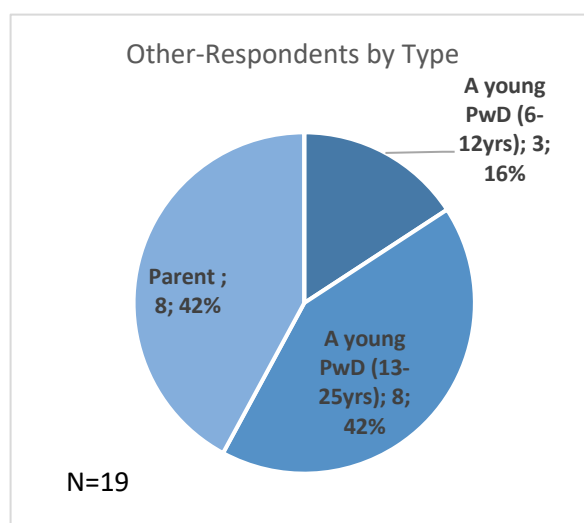


Figure 4.8 Other-Respondents by Type





Appendix – Survey example

This appendix shows how the survey looked for each target group:

- Children living with diabetes, aged 6 to 12
- Children living with diabetes, aged 13 to 25
- Parents of children living with diabetes
- Sport coaches and teachers

Sports and Diabetes - SURVEY

Introduction

Children, teenagers and young adults diagnosed with diabetes sometimes struggle to continue with their sporting activities in the same way as they did before their diagnosis, while parents, teachers and coaches also sometimes lack the necessary knowledge, training and/or confidence to ensure that children and youths with diabetes can participate in all sporting activities safely and to their optimal performance.

To address this, a consortium of sports clubs from various European countries – TSV Bayer Leverkusen (Germany), HAŠK Mladost (Croatia), Lazio Volley (Italy), Olympiacos (Greece), WSC (Austria) – and a Federation representing people living with diabetes and healthcare professionals, International Diabetes Federation Europe, have joined force to develop a publication which will address the main questions and concerns among all key stakeholders – children and youths and their parents as well as coaches and trainers. The project is co-funded by the Erasmus+ programme of European Union.

The idea is to disseminate this publication widely to ensure that people with diabetes enjoy equal opportunities and full inclusion in sport.

The first step in the development of this publication is a survey which will be conducted among all stakeholder groups to determine which are the main concerns and questions which should be included in the publication.

The survey

The survey will take approximately 15 minutes to complete. The survey data will be used for research purposes only and will not be used for any commercial purpose. Your answers will remain totally confidential.

For children between the age of 6-12, both the child and one parent should fill in the survey. Ideally, the parents should not be the ones supervising their children to avoid the risk of influencing them.

I have read the above introduction and I consent to participating/I consent to my child participating in this survey and for the data to be used for research purposes only.

a. Yes

b. No **(END OF SURVEY)**



About you

Country:

I am:

A young person with diabetes (6-12 years of age)

A young person with diabetes (13-25 years of age)

A parent of a child/youth with diabetes

A coach, trainer or gym teacher in a school

Other **(END OF SURVEY)**



Child with diabetes (6-12)

1. When were you diagnosed with diabetes? (select one only)
 - When I was under two years of age
 - Between the age of 2-6
 - Between the age of 7-9
 - Between the age of 10-12
 - Don't know
2. How do you check and manage your diabetes? (select all that apply)
 - a. I only use test strips and a meter
 - b. I primarily use a continuous/flash glucose monitoring system (sensor under the skin and receiver/sensor and scanning)
 - c. I use an insulin pump
 - d. I use insulin pens
 - e. I inject insulin through a syringe
 - f. Other (please specify)
3. Do you currently practice sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)
 1. Yes (**Go to question 7**)
 2. No (**Go to question 4**)
4. Have you ever practiced sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)
 - a. Yes (**Go to question 5**)
 - b. No (**End of questionnaire**)
5. Why did you stop? (select one only)
 - a. I stopped for reasons that had nothing to do with diabetes
 - b. I stopped because my doctor recommended I should stop or because the school, club or parents did not want me to continue or because it was too complicated or I did not feel like having to deal with my diabetes and do sport
 - c. I cannot remember/I don't know
 - d. Other - Please specify
6. When did you stop?
 - a. I stopped as soon as I was diagnosed with diabetes (within one month of diagnosis) **END OF SURVEY**
 - b. I did practice for a while after I was diagnosed (practiced at least one month after diagnosis)
7. Has living with diabetes ever prevented you from doing sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)? (select all that apply)
 - a. No - **GO TO QUESTION 9**
 - b. Yes, because I was not feeling up to it (either physically or mentally)
 - c. Yes, because of other reasons
8. If living with diabetes has ever prevented you from doing sport at school or in a club, how often has this happened? (select one only)
 - It happens every week
 - It happens 2-3 times a month
 - It happens once a month or so
 - It happens less frequently
 - It has happened in the past, but it no longer happens
 - I no longer practice



9. Have any of the following statements ever applied to you? (Please select all that apply - Yes, No, N/A)
- My teacher/coach did not let me do sport
 - My parents did not let me do sport
 - I was wondering if I could do sport generally
 - I was wondering whether I could do all the sporting activities I want to / are there any limits to my doing sport
 - I was not sure I would be welcome in a team if they knew I have diabetes
 - I was not sure whether the coach/trainer would welcome me if they knew I have diabetes
 - I was not sure whether the coach/trainer would know how to deal with the situation if a problem occurred with my diabetes during training/games
 - I was not sure how to control my blood sugar while doing sport (also before/after)
 - I did not like having to manage my diabetes (blood sugar levels) so much
 - I did not know how to manage my diabetes (blood sugar levels) when exercising (normally my parents or somebody else does it for me)
 - I was worried about having too low blood sugar levels during exercise
 - I was worried about having too high blood sugar levels during exercise
 - I was worried about having to stop during the exercise/game (and letting my friends down)
 - I was worried about having to deal with my diabetes in front of other people (for example, having to inject my insulin in front of my school/club friends)
 - I felt I was treated differently by my teammates/other players (e.g. I was not being passed the ball)
 - None of these have ever applied to me

10. At what level of intensity do you/did you generally practice your sport? (Please select all that apply)
- Low intensity (you can talk and sing while exercising without running out of breath)
 - Medium intensity (You can talk comfortably, but you can't sing any more than a few words without running out of breath)
 - High intensity (you can't say any more than a few words without having to pause to breathe)



11. What are the three main sports you practice/practiced? (Please number them between 1 and 3, with 1 being the sport you practice the most)

Basketball
Cycling
Football (Soccer)
Handball
Hockey (Ice/Field)
Gymnastics

Rowing
Swimming
Tennis
Volleyball
Physical education lessons at school
Other, please specify

12. Is there anything else that particularly annoys/worries/bothers you in relation to you doing sports and your diabetes?



Young person with diabetes (13-25)

1. When were you diagnosed with diabetes?
 - a. When I was under two years of age
 - b. Between the age of 2-6
 - c. Between the age of 7-9
 - d. Between the age of 10-12
 - e. Between the age of 13-16
 - f. Between the age of 17-25
 - g. Don't know/can't remember
2. How do you check and manage your diabetes? (select all that apply)
 - a. I only use test strips and a meter
 - b. I primarily use a continuous/flash glucose monitoring system (sensor under the skin and receiver/sensor and scanning)
 - c. I use an insulin pump
 - d. I use insulin pens
 - e. I inject insulin through a syringe
 - f. Other (please specify)
3. Do you practice sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)
 3. Yes (**Go to question 7**)
 4. No (**Go to question 4**)
4. Have you ever practiced sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)
 - a. Yes (**Go to question 5**)
 - b. No (**End of questionnaire**)
5. Why did you stop? (select one only)
 - a. I stopped for reasons that had nothing to do with diabetes
 - b. I stopped because my doctor recommended I should stop or because the school, club or parents did not want me to continue or because it was too complicated or I did not feel like having to deal with my diabetes and do sport
 - c. I cannot remember/I don't know
 - d. Other - Please specify
6. When did you stop?
 - a. I stopped as soon as I was diagnosed with diabetes (within one month of diagnosis) **END OF SURVEY**
 - b. I did practice for a while after I was diagnosed (practiced at least one month after diagnosis)
7. Has living with diabetes ever prevented you from doing sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)? (select all that apply)
 - a. No. **GO TO QUESTION 9**
 - b. Yes, because I was not feeling up to it (either physically or mentally)
 - c. Yes, because of other reasons
8. If living with diabetes has ever prevented you from doing sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)? (select one only)
 - It happens every week
 - It happens 2-3 times a month
 - It happens once a month or so
 - It happens less frequently
 - It has happened in the past, but it no longer happens
 - I no longer practice



9. Have any of the following statements ever applied to you (Yes/No/NA)
 - a. My teacher/coach did not let me participate in sports
 - b. My parents did not let me participate in sports
 - c. I was wondering if I could participate in sporting activities generally
 - d. I was wondering whether I could participate in all the sporting activities I want to / are there any limits to my doing sport
 - e. I was wondering whether I would be welcome in a team if they know I have diabetes
 - f. I was wondering whether the coach/trainer would welcome me if they knew I have diabetes
 - g. I was wondering whether the coach/trainer would know how to deal with the situation if a problem occurs with my diabetes during training/games
 - h. I am not sure how to control my blood sugar while doing sport (also before/after)
 - i. I did not like having to manage my diabetes (blood sugar levels) so much
 - j. I did not know how to manage my diabetes (blood sugar levels) when exercising (normally my parents or somebody else does it for me)
 - k. I am worried about hypoglycaemia (low blood sugar)
 - l. I was worried about hyperglycaemia (high blood sugar)
 - m. I am worried about having to stop during training/games and letting my teammates down
 - n. I am worried about having to deal with my diabetes in public (for example, having to inject my insulin in front of other people)
 - o. I felt I was treated differently by my teammates/other players (e.g. I was not being passed the ball)
 - p. None of these have ever applied to me

10. At what level of intensity do you/did you generally practice your sport? (Please select all that apply)
 - a. Low intensity (you can talk and sing while exercising without running out of breath)
 - b. Medium intensity (You can talk comfortably, but you can't sing any more than a few words without running out of breath)
 - c. High intensity (you can't say any more than a few words without having to pause to breathe)

11. What are the three main sports you practice/practiced? (Please number them between 1 and 3, with 1 being the sport you practice the most)

Basketball	Rowing
Cycling	Tennis
Football (Soccer)	Volleyball
Handball	Physical education lessons at school
Hockey (Ice/Field)	Other, please specify
Gymnastics	

12. Focusing on maintaining adequate blood sugar levels, on a scale from 1 to 5 (with 1 being not at all concerned, 2 slightly concerned, 3 moderately concerned, 4 very concerned to 5 being extremely concerned), how would you rate your level of concern/interest in the topics listed below?
 - Knowing how you can adapt blood sugar levels to the exercise (before, during, after) – e.g. decreasing insulin intake vs increasing food, etc.
 - Knowing whether you can still train based on a given blood sugar level (before, during, after)
 - The mechanics of how blood sugar increases/decreases (e.g. impact of adrenaline)
 - Getting hypo (low blood sugar) during/after training
 - Getting hyper (high blood sugar) during/after training
 - The insulin pump/sensor during exercise
 - The best foods to increase blood sugar levels

13. Please share with us any thoughts, concerns, questions you have about engaging in sports.



Parent of a child living with diabetes

1. How old is your child now?
 - a. Six and under
 - b. 7-12
 - c. 13-16
 - d. 17-25
2. How old was he/she when diagnosed?
 - a. Under two years of age
 - b. Between the age of 2-6
 - c. Between the age of 7-9
 - d. Between the age of 10-12
 - e. Between the age of 13-16
 - f. Between the age of 17-25
 - g. Don't know/can't remember
3. How does your child check and manage his/her diabetes? (select all that apply)
 - a. Only uses test strips and a meter
 - b. Primarily uses a continuous/flash glucose monitoring system (sensor under the skin and receiver/sensor and scanning)
 - c. Uses an insulin pump
 - d. Uses insulin pens
 - e. Injects insulin through a syringe
 - f. Other (please specify)
4. Does your child practice sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)
 - a. Yes (**Go to question 8**)
 - b. No (**Go to question 5**)
5. Has your child ever practiced sport at school (physical activity lesson) or in a club (the club can be based in the school or be based elsewhere)
 - a. Yes (**Go to question 6**)
 - b. No (**End of questionnaire**)
6. Why did your child stop? (select one only)
 - a. My child stopped for reasons that had nothing to do with diabetes
 - b. My child stopped because my doctor recommended he/she should stop or because the school, club or parents did not want him/her to continue or because it was too complicated or my child did not feel like having to deal with his/her diabetes and do sport
 - c. I cannot remember/I don't know
 - d. Other - Please specify
7. When did your child stop?
 - a. My child stopped as soon as he/she was diagnosed with diabetes (within one month of diagnosis)
END OF SURVEY
 - b. My child did practice for a while after he/she was diagnosed (practiced at least one month after diagnosis)
8. Has living with diabetes ever prevented your child from doing sport at school or in a club?
 - a. No (**Go to question 10**)
 - b. Yes, because he/she was not feeling up to it (either physically or mentally)
 - c. Yes, because of other reasons



9. If living with diabetes has ever prevented your child from doing sport at school or in a club, how often has this happened? (select one only)
- It happens every week
 - It happens 2-3 times a month
 - It happens once a month or so
 - It happens less frequently
 - It has happened in the past, but it no longer happens
 - My child no longer practices
10. Have any of the following statements ever applied to **YOU** (Yes/No/NA)
- a. I wonder whether my child is able to engage in sporting activities
 - b. I wonder whether the teacher/coach will let my child participate in sports
 - c. I wonder whether my child will be treated differently from the other players in the team
 - d. I wonder whether my child will be welcome in a team
 - e. I wonder whether my child will be welcome by the coach/trainer
 - f. I wonder whether the coach/trainer will know how to deal with the situation if a problem occurs with my child's diabetes
 - g. I wonder whether my child will be able to control his/her blood sugar while doing sport (also before/after)
 - h. I worry about what will happen if my child develops hypoglycaemia
 - i. I worry about what will happen if my child develops hyperglycaemia
 - j. I worry about what will happen if my child has to stop during training/games
 - k. I worry about people commenting/reacting if my child needs to deal with his/her diabetes in public (for example, having to inject insulin in front of other people)
11. Now looking at the perspective of your child, do you believe that any of the following statements have ever applied to **YOUR CHILD** (Yes/No/NA)? *(The question is designed to be answered by parents as if you were in the child's shoes, answering what you believe your child may have felt/experienced. The „I“ below represents the child NOT the parent)*
- a. My teacher/coach did not let me participate in sports
 - b. My parents did not let me participate in sports
 - c. I was wondering if I could participate in sporting activities generally
 - d. I was wondering whether I could participate in all the sporting activities I want to / are there any limits to my doing sport?
 - e. I was wondering whether I would be welcome in a team if they know I have diabetes
 - f. I was wondering whether the coach/trainer would welcome me if they knew I have diabetes
 - g. I was wondering whether the coach/trainer would know how to deal with the situation if a problem occurs with my diabetes during training/games
 - h. I am not sure how to control my blood sugar while doing sport (also before/after)
 - i. I did not like having to manage my diabetes (blood sugar levels) so much
 - j. I did not know how to manage my diabetes (blood sugar levels) when exercising (normally my parents or somebody else does it for me)
 - k. I am worried about hypoglycaemia (low blood sugar)
 - l. I was worried about hyperglycaemia (high blood sugar)
 - m. I am worried about having to stop during training/games and letting my teammates down
 - n. I am worried about having to deal with my diabetes in public (for example, having to inject my insulin in front of other people)
 - o. I felt I was treated differently by my teammates/other players (e.g. I was not being passed the ball)
 - p. None of these have ever applied



12. At what level of intensity does/did your child generally practice your sport? (Please select all that apply)
- Low intensity (you can talk and sing while exercising without running out of breath)
 - Medium intensity (You can talk comfortably, but you can't sing any more than a few words without running out of breath)
 - High intensity (you can't say any more than a few words without having to pause to breathe)
13. What are the three main sports your child practice/practiced? (Please number them between 1 and 3, with 1 being the sport the child practice/practiced the most)

Basketball
Cycling
Football (Soccer)
Handball
Hockey (Ice/Field)
Gymnastics

Rowing
Swimming
Tennis
Volleyball
Physical education lessons at school
Other, please specify

14. Focusing on maintaining adequate blood sugar levels, on a scale from 1 to 5 (with 1 being not at all concerned, 2 slightly concerned, 3 moderately concerned, 4 very concerned to 5 being extremely concerned), how would you rate your level of concern/interest in the topics listed below?
- Knowing how your child can adapt blood sugar levels to the exercise (before, during, after) – e.g. decreasing insulin intake vs increasing food, etc.
 - Knowing whether your child can still train based on a given blood sugar level (before, during, after)
 - The mechanics of how blood sugar increases/decreases (e.g. impact of adrenaline release)
 - Getting hypo (low blood sugar) during/after training
 - Getting hyper (high blood sugar) during/after training
 - The insulin pump/sensor during exercise
 - The best foods to increase blood sugar levels
15. Please share with us any thoughts, concerns or questions you have about your child engaging in sports



Coaches/Trainers/Gym teachers

Please select all responses that apply

Are you a coach or a trainer (coaching/training in a club)?

Are you a gym teacher? (Coaching/training in a school as part of physical education lessons)

1. Do you know that there are several types of diabetes, the main ones of which are type 1 diabetes (T1D) and type 2 diabetes (T2D)? (Yes/NO)
2. Do you know that most children with diabetes have T1D? (Yes/NO)
3. Do you know that the management of Type 1 Diabetes requires insulin injections? (Yes/NO)
4. On a scale of 1-5, with 1 being Very poor, 2 Poor, 3. Average, 4.Good and 5 Excellent, how do you rate your knowledge of Type 1 diabetes generally ?
5. On a scale of 1-5, with 1 being Very poor, 2 Poor, 3. Average, 4.Good and 5 Excellent, how do you rate your knowledge of diabetes and sports (i.e. how to support people with diabetes engage in sporting activities)?
6. Generally, have any of the following questions occurred/been of concern to you? (Please select all that apply)
 - a. Can a child/young person with diabetes engage in sporting activities?
 - b. Does a child/young person with diabetes need to be treated differently from others?
 - c. Will I know how to deal with the situation if a problem occurs with a child/young person's diabetes during sport?
 - d. Will the child/young person be able to control his/her blood sugar while doing sport (also before/after)?
 - e. What will happen if the child/young person develops low blood sugar?
 - f. Will people comment/react if the child/young person needs to deal with his diabetes in public (for example, having to inject insulin in front of other people)?
 - g. How will the child/young person's teammate react if he/she has to stop training/playing a game?
7. Focusing specifically on maintaining adequate blood sugar levels, on a scale from 1 to 5 (with 1 being not at all concerned, 2 slightly concerned, 3 moderately concerned, 4 very concerned to 5 being extremely concerned), how would you rate your level of concern/interest in the topics listed below?
 - Knowing how a child/young person can adapt blood sugar levels to the exercise (before, during, after) – e.g. decreasing insulin intake vs increasing food, etc.
 - Knowing whether a child/young person can still train based on a given blood sugar level (before, during, after)
 - The mechanics of how blood sugar increases/decreases (e.g. impact of adrenaline release)
 - Getting low blood sugar during/after training
 - Getting high blood sugar during/after training
 - The insulin pump/sensor during exercise
 - The best foods to increase blood sugar levels
8. Please share with us any other thoughts, concerns or questions you have about coaching/training a child/young person with diabetes



International
Diabetes Federation
Europe

For more information, please visit the project website: www.sportsanddiabetes.eu

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