

## BLOOD DONATION IN ADOLESCENTS

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**Abstract:** *Today, the full rush, and increasing the quantity of life-threatening injuries. And then starts decline precious word, blood. Medicine, of course, knows many other emergencies, when human blood is needed. Despite the fact that we live in the third millennium, yet failed to produce replacement blood. May donate blood every healthy man aged 18 who is willing to donate to help a patient who is unable to help himself. Either the donor blood given to save or prolong the life of a sick or a patient will remain without assistance. It is necessary to give the young man enough information on the donation of blood, its contribution to others. Information: donate and save lives “and” donate at least 1x a year, and transfused to the station and bring at least 1 friend, “one of the most important.*

*Why donate:*

- 1. Overcomes himself.*
- 2. Find out your health status.*
- 3. Blood donation is a “training” the body for emergency situations associated with major blood loss.*
- 4. Donation contributes to the overall regeneration of the organism, it has a stimulating effect, says the so-called. juvenescence.*

*One of the 19 annual student responses to the questionnaire, the question of why donate read: “We live in a fast time and any fraction of a second do I need it and myself.”*

**Keywords:** *blood donor, adolescent*

### Introduction

The present time is hasty, full of rush. This often brings about unexpected situations to which man is not prepared. An injury or a disease sometimes hit man like a flash of lightning from a clear sky. The number of life-threatening injuries shows an increasing trend recently. And so the notion of precious blood gets into a focus of attention. Human health and lives depend on sufficient blood stock.

## Human Blood

Blood – the rare fluid circulating in our blood vessels – is a symbol of life. Human organism cannot exist without it. From the chemical point of view it is a suspension, from the morphological point of view a mesenchyme tissue and from the physiological point of view a heterogeneous liquid. The most important thing is that our existence depends on our blood and its quality affects human health and may even cause death (Sviteková, 2009).

Blood with all its components is too complex and perfect fluid. Healthy man remains its exclusive and irreplaceable donor.

Annually around 500 thousand women in the world die during pregnancy and delivery and up to a fourth of them could be saved by blood transfusion. Bleeding is the second most frequent cause of death after traffic accidents. In our region people are used to believing that they will get blood whenever they need it, but not everywhere in the world this can be taken for granted.

Even though around 80 million blood units are made in the world annually, blood is still inaccessible for many people in need. Whether because the countries they live in have created insufficient blood reserves (the so called blood banks), or simply because a suitable blood type is not readily available. In up to 70 countries of the world there is no official blood donation programme. Blood also helps save lives of patients suffering from long-term illnesses or patients after injury and excessive blood loss. This would be impossible without cooperation of permanent and voluntary blood donors. These people donate blood regularly without a claim for compensation and also on request when urgently needed (Rosočková, 2009).

## History of Blood Transfusion

The miraculous human blood, its nice red colour, its ability to help the sick and sometimes also its rejuvenating effects were already noticed by the mankind in the ancient past. People noticed that blood running away from the body of an injured animal or human seriously threatened their lives. They believed in the supernatural power of blood and that is why the Romans drank blood of their gladiators. Even in the territory of the present Slovakia, as the legend has it, the famous Lady of Čachtice bathed in the blood of young virgins in late 16<sup>th</sup> and early 17<sup>th</sup> centuries (Nedvěď, 2009).

Karl Landsteiner (14 June 1868 Baden by Wien – 26 June 1943 New York) – a doctor-Nobel Prize holder for medicine and physiology (1930) – was an Austrian immunologist who focused his career on research into immunological reactions of blood and monitoring if its agglutination properties. In 1900 he discovered the agglutination effect of blood serum on erythrocytes, on the basis of which he divided erythrocytes to three groups, A, B and c. Later he contributed to the discovery of the Rh factor.

In his honour the world celebrates the annual Global Day of Blood Donors, a worldwide event connected with the date of his birth (14 June).

The celebrations of the Global Day of Blood Donors are connected with various cultural events, sporting events, public discussions, quizzes and debates around the world. The importance of this day also lies in the facts that at the same time the

same ideas are promoted in all parts of the world and the whole world follows the same objective – expression of thanks to the active voluntary blood donors who provide a priceless service to the human society, and encouraging of other people to join them. All this is done for us to be able to be sure that at the moment we will need blood there will be a sufficient stock of it and the blood will be available. The celebrations of the Global Day of Blood Donors also include events promoting healthy lifestyle, which is crucial for active blood donors (Global Day of Blood Donors, 2010).

The first scholar correctly classifying blood into the four basic categories was the Czech psychiatrist Jan Jánský. In 1907 he published his results of research into blood properties in psychiatric patients, marking blood categories with Roman figures I, II, III, IV. Independently of Jánský the four blood categories were also described in 1910 by the American William Lorenzo Moss. About thirty years later the blood categories were marked A, B, AB and 0. At that period the direct blood donations were still carried out, i.e. the artery of the donor was directly connected to the artery of the recipient. Full progress was only reached by blood transfusion after year 1940 – the year of discovery of the Rh factor, blood conservation and stabilisation for storage purposes (Classification of Blood Donors, 2010).

## Blood Donations

Blood donations by voluntary blood donors are carried out at the sites of the National Transfusion Service of the Slovak Republic, at Haematological and Transfusion Departments and Mobile Donation Points. One donation results in 450 ml of blood. Blood cell separators allow for separation of the individual blood components needed by the particular patient: platelets, erythrocytes and plasma. The shelf life of the individual components is different: erythrocytes can be stored for up to 42 days at the temperature of 2 – 6 °C, platelets – thrombocytes for five days in the thrombo-agitator at the temperature of up to 25 °C and freshly frozen plasma may be stored for three years in freezers with the temperature of – 30 °C.

Blood category frequency in our population:

A Rh pos: 36.7 %	A Rh neg: 6.3 %
O Rh pos: 27.2 %	O Rh neg: 4.8 %
B Rh pos: 15.3 %	B Rh neg: 2.7 %
AB Rh pos: 6.8 %	AB Rh neg: 1.2 %

Blood transfusion does not equal other surgical procedures. It cannot be separated from the voluntary act of blood donation by the donor. The healthcare professional is a mediator of self-donation by the donor. The purpose is the life and health of another person – the patient.

Blood donation is not a temporary one-off action, but a permanent need of these deeds. Blood therapy and life rescue by blood are taken for granted today. But blood donation does not go without saying like that, even though people know that without the help of blood donors there would be no transfusions, surgeries, rescue of bleeding, burnt or other patients.

Why do people consider less obvious to donate blood when their fellow humans need it than to take it? The former is much easier than the latter. The attitude of people to this social need is often indifferent, whether because they are not urged by this problem or because they rely on others. However, they fail to realize that the word others actually means all and that blood donation should be considered moral and human duty. Human health and lives depend on blood stock sufficiency. A sufficient number of blood donors indicates human awareness, advanced culture and moral standards of the society. The need for blood cannot be satisfied by a group of unyielding donors – on the contrary, every healthy individual should repeatedly donate his or her blood when needed, also for those whose health state does not allow them to do so as well (Sakalová, 1995).

People must come to understand that blood donation is an issue of deep human responsibility, an expression of relationship to other people and realisation of the fact that the boundary between a blood donor and a blood recipient is often a mere question of time and luck.

## **Blood Donations in Slovakia**

Historic origin of blood donations and transfusions must be sought at surgical departments as originally blood transfusions were part of surgeries and therefore the domain of surgeons. Before 1937 blood was mainly donated by family members of the patients in need and individuals living on the financial remuneration for the donations. Despite the financial remuneration for blood donation there were not many voluntary donors. That is why the healthcare professionals began to organize groups of core blood donors. The groups consisted of volunteers, honest citizens from the nearest surroundings of the hospital, who were able to turn up for an act of blood donation very quickly. A turning point came after 1947, when the Blood Donor Centre was established, and another in 1948 by establishment of the National Transfusion Service, pioneered by MUDr. Mikuláš Hrubíško, the founder of haematology and transfusiology in Slovakia. After 1950 the transfusion service saw rapid progress and the blood donors were perfectly organised by the Czechoslovak Red Cross. On that basis the Slovak National Transfusion Service and the Slovak Red Cross have cooperated since.

In Slovakia blood donation is voluntary and free. The European Council has recommended and introduced principles of self-sufficiency based on voluntary free blood donation.

„Blood donation is considered voluntary and free if the donor donates blood plasma or cells on the basis of his or her free will and without a claim for any remuneration in the form of a monetary contribution or in another form that might be considered equivalent to money, which may include for example working time off longer than the time needed for the blood taking and transport to the site. Small souvenirs, refreshments and travel cost compensations are compatible with voluntary free blood donation” (Annex, 2003).

In Slovakia voluntary blood donations without a claim for remuneration are awarded by the Slovak Red Cross Slovenským červeným krížom.

### **Criteria for Awards of Professor MUDr. J. Janský Placard**

Janský Bronze Placard – 10 free blood donations

Janský Silver Placard – 20 free blood donations

Janský Gold Placard – 30 free blood donations (females), or 40 free blood donations (males)

Janský Diamond Placard – 60 free blood donations (females), or 80 free blood donations (males)

Křazovického Medal – 80 free blood donations (females), or 100 free blood donations

Doc. MUDr. Vladimír Křišl, CSc. Memorial Placard – for blood donation promotion (Classification of Blood Donors, 2010).

### **A blood donor may be:**

A person without history of infectious hepatitis of types B,C, and not HIV carrier,

- A person without history of syphilis, sexual partnership with people suffering from these diseases and contact with people with these diseases in the course of the past year,
- A person without any surgery, tattoo, acupuncture therapy, ear piercing or other body part piercing, blood transfusion, plasma transfusions, endoscopic examination in the past year,
- A person not treated with pituitary hormones and without family history of this disease,
- A person not characterised as a person with risk behaviour,
- A person who is not and was never a drug addict or alcohol abuser,
- A person not regularly taking long-term pharmaceutical therapy (Procedures and Rules of Blood Donation, 2010).

### **Blood should never be donated any more by a person who:**

- Takes or used to take narcotics through intravenous or intramuscular application
- Has provided or taken paid sexual services
- Is a homosexual
- Has led promiscuous life with frequent changes of sexual partners
- Has used anabolic steroids not prescribed by a doctor
- Has taken anticoagulants

(Before you Donate Blood, 2010)

### **Reasons for blood donation:**

1. To outperform.
2. To find own health state.
3. To contribute to overall regeneration of the organism, to stimulate the body to regenerate and rejuvenate.

Medicine knows a lot of urgent cases of need for human blood. Even though we live in the third millennium the mankind has not yet managed to produce any blood substitute.

Blood may be donated by any healthy individual willing to help a patient who cannot help himself or herself. Either the blood donor donates his or her blood and rescues or extends the patient 's life or the patient will be left without help.

It is necessary to provide young people enough information about blood donation, its contribution to other people. Information "Donate blood and you will rescue a life" and also "Donate blood at least once a year and bring at least one friend to the transfusion station" belong to the vital ones.

Education of blood donors mainly involves cooperation with schools and other educational institutions from nurseries to universities. At the nursery, through the project A Drop of Blood, the children get acquainted with the importance of their health and the value of the life-fluid – the blood. At primary and secondary schools the pupils and students obtain necessary information about blood and the importance of blood donation through various workshops. This provides priceless outlook to the young people before they reach the age of 18 and can begin their careers of blood donors. The educational activities are organised by Club 25, preparing educational and motivation programmes for future blood donors (Annual Report, 2008).

The Slovak Red Cross creates space and suitable conditions for voluntary work of children and youth from 5 to 25 years of age (Annual Report, 2009).

## **Conclusion**

The human society must take care of blood donation not only by acquisitions of new active blood donors but also by its respect for them and their social reward.

Modern transfusiology is governed by the principle of giving every patient just the blood component he or she is missing. That is why the blood collected from the donors is further processed for its separation to erythrocytes, thrombocytes and the plasma. The staffs of the transfusion departments take care of the collected blood as a gift. The blood taken, its components and the products made from it are considered a gift donated by the donor and entrusted to the transfusion site for taking care of until the moment of its use (Code of Conduct, 1997).

Blood donation is justified from the ethical point of view by the principle of solidarity and love, as a highly human and morally valuable deed – man donates his or her blood to rescue life or health of another person. For these purposes voluntary free donations of blood and plasma should be promoted. It is necessary to extend information to the general public about the medical need and the high moral value of blood donation. An important role in this process is also performed by education about blood donation at secondary schools and universities.

## DARCOVSTVO KRVI U ADOLESCENTOV

**Abstrakt:** *V dnešnej dobe, plnej zhonu, narastá i množstvo život ohrozujúcich úrazov. A vtedy sa začína skloňovať vzácne slovo, krv. Medicína, samozrejme, pozná mnoho ďalších urgentných prípadov, kedy je ľudská krv potrebná. Napriek tomu, že žijeme v treťom tisícročí, doteraz sa nepodarilo vyrobiť náhradu krvi.*

*Krv môže darovať každý zdravý človek vo veku od 18 rokov, ktorý je ochotný pomôcť svojim darovaním pacientovi, ktorý si sám pomôcť nedokáže. Buď darca krv daruje a zachráni či predĺži chorému život, alebo pacient ostane bez pomoci.*

*Je potrebné poskytnúť mladému človeku dostatok informácií o darcovstve krvi, jeho prínose pre ostatných. Informácia: „Daruj krv a zachrániš život“ a tiež: „Daruj krv aspoň 1x ročne a na transfúziu stanicu prived' aspoň 1 kamaráta“, patria k tým najdôležitejším.*

*Prečo darovať krv:*

- 1. Prekonám sám seba.*
- 2. Zistím si svoj zdravotný stav.*
- 3. Darcovstvo krvi je „tréningom“ organizmu na mimoriadne situácie, spojené s veľkou stratou krvi.*
- 4. Darovanie krvi prispieva k celkovej regenerácii organizmu, má neho stimulujujúci účinok, hovorí sa o tzv. omladnutí.*

*Jedna z odpovedí 19 ročného študenta v dotazníku, na otázku, prečo darovať krv znela: „Žijeme v rýchlej dobe a v hociktorý zlomok sekundy ju môžem potrebovať i ja sám“.*

**Kľúčové slová:** *Darca krvi, adolescent*