

تكيس المبايض وعلاقته بالرياضة لدى النساء

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الملخص

متلازمة المبيض المتعدد الكيسات (PCOS) هي حالة الغدد الصماء الأكثر انتشارًا بين الإناث في سن الإنجاب، مما يؤدي إلى أعراض استقلابية قلبية وإنجابية ونفسية وجلدية مدى الحياة بالإضافة إلى انخفاض جودة الحياة. تعتبر تدخلات نمط الحياة، والتي يمكن أن تشمل برامج تمرين منظمة يقدمها متخصصون في التمارين مدربون بشكل مناسب مثل علماء وظائف الأعضاء السريريين، استراتيجيات الخط الأول في إدارة متلازمة تكيس المبايض نظرًا لآثارها العلاجية على النتائج الصحية المختلفة ونوعية الحياة. يعتمد بيان الموقف هذا على المبادئ التوجيهية الدولية المبنية على الأدلة لعام ٢٠٢٣ لتقييم وإدارة متلازمة تكيس المبايض ويصف دور أخصائي التمرينات في سياق فريق الرعاية متعدد التخصصات الذي يضم الأطباء والمهنيين الصحيين المتحالفين. يهدف بيان الموقف هذا إلى تزويد المتخصصين في التمارين الرياضية بفهم واسع للفيزيولوجيا المرضية لمتلازمة تكيس المبايض، وكيفية تشخيصها وإدارتها في الممارسة السريرية، والتوصيات المبنية على الأدلة والإجماع بشأن النشاط البدني والتمارين الرياضية في إدارة متلازمة تكيس المبايض. تماشيًا مع توصيات النشاط البدني لعامة الناس، يجب على الأفراد الذين يعانون من متلازمة تكيس المبايض أن يهدفوا إلى القيام بما يتراوح بين ١٥٠ إلى ٣٠٠ دقيقة من النشاط البدني المعتدل الشدة أو ٧٥ إلى ١٥٠ دقيقة من النشاط الهوائي عالي الشدة أسبوعيًا، أو مزيج مكافئ من الاثنين على مدار الأسبوع.

الكلمات المفتاحية: متلازمة المبيض، الكيسات، النساء الغدد، الصماء، ممارسة الرياضة.

Motherhood and sport in Polycystic ovary syndrome and its relationship to sports in women

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Abstract:

The maximum not unusual place endocrine situation in ladies of reproductive age, polycystic ovarian syndrome (PCOS) reasons cardiometabolic, reproductive, mental, and dermatological signs and symptoms similarly to decreased great of life. Lifestyle interventions, specifically established exercising regimens carried out via way of means of certified exercising professionals along with medical physiologists, are taken into consideration essential strategies withinside the control of polycystic ovary syndrome (PCOS) attributable to their fine effect on diverse fitness results and average great of life. Built at the 2023 global evidence–primarily based totally recommendations for the assessment and remedy of polycystic ovarian syndrome, this role assertion defines the function of the exercising expert inside a multidisciplinary care crew comprising medical doctors and allied fitness professionals. This role assertion is supposed to offer exercising practitioners with an intensive know–how of the pathophysiology of PCOS, its diagnostic standards and medical care, in addition to evidence–primarily based totally, consensus recommendations applicable to bodily hobby and exercising withinside the control of PCOS. Following widespread populace bodily hobby recommendations, people with PCOS need to goal for one hundred fifty to three hundred mins of moderate–depth exercising or seventy five to one hundred fifty mins of vigorous–depth cardio hobby each weekend, or a enough blend of each at some stage in the week.

Keywords: ovarian syndrome, cysts, women’s glands, endocrinology, exercise.

1.1 Introduction

Common hormonal illness among women of reproductive age is polycystic ovarian syndrome (PCOS). It influences ovarian activity, which causes weight gain, insulin resistance, menstruation problems, and changes in androgen levels—male hormones. Affecting between 6–20% of women worldwide, polycystic ovary syndrome is one of the most common gynaecological diseases. Studies on how physical exercise and sports might help women with polycystic ovarian syndrome lessen their symptoms and enhance their quality of life have grown in importance recently. This study is to investigate the association between PCOS and exercise and to underline the health advantages that exercise offers in terms of symptom improvement related with the syndrome.

1.2 Importance of Research

Equipping exercise practitioners with a comprehensive awareness of the pathophysiology of PCOS, its diagnostic criteria and therapeutic management, as well as evidence-based and consensus guidelines pertaining to physical activity and exercise in the treatment of PCOS. Consistent with physical activity guidelines for the general populace, individuals with PCOS should strive to engage in exercise.

1.3 Research problem

Female patients with polycystic ovary syndrome and how to treat them

1.4 Research objectives

- Describes the function of the workout professional withinside the context of a multidisciplinary care group that consists of physicians and allied fitness specialists.
- Providing workout practitioners with a fundamental hold close of the pathophysiology of PCOS, how it's miles recognized and dealt with in scientific practice, and evidence–primarily based totally and consensus hints addressing bodily interest and workout withinside the control of PCOS.
- The diagnostic and healing protocols in scientific practice, collectively with evidence–primarily based totally and consensus hints for bodily interest and workout withinside the remedy of PCOS. In accordance with bodily interest suggestions for the overall population, people with PCOS ought to attempt to have interaction in everyday bodily interest.

1.5 Define terms

Physical activity. Polycystic ovary syndrome. Endocrine glands .

- • Physical activity: It encompasses all bodily movements executed by the muscles that necessitate energy expenditure, including duties related to work, play, home chores, and recreational pursuits.
- Polycystic ovary syndrome : Polycystic ovary syndrome is a disorder in which menstrual cycles are spaced, irregular, or long in duration. It often leads to excessive secretion of the male hormone known as androgen. Many small fluid sacs form on the ovaries. They may fail to produce eggs regularly .

- Endocrine glands are those that discharge their secretions straight into the bloodstream instead of via ducts. The body has these glands scattered all around. Its secretions include protein and chemical elements vital for organ operation and body chemical balance control. They are known as hormones.

1.1 Research Methodology

This observe attracts at the 2023 International Evidence–Based Guidelines for the Evaluation and Management of PCOS and defines the position of the workout professional inner a multidisciplinary care crew comprising allied fitness specialists and doctors. This role assertion goals to offer workout practitioners with a radical know–how of PCOS pathophysiology, prognosis standards and scientific therapy, in addition to evidence–based, consensus suggestions concerning bodily interest and workout withinside the control of PCOS.

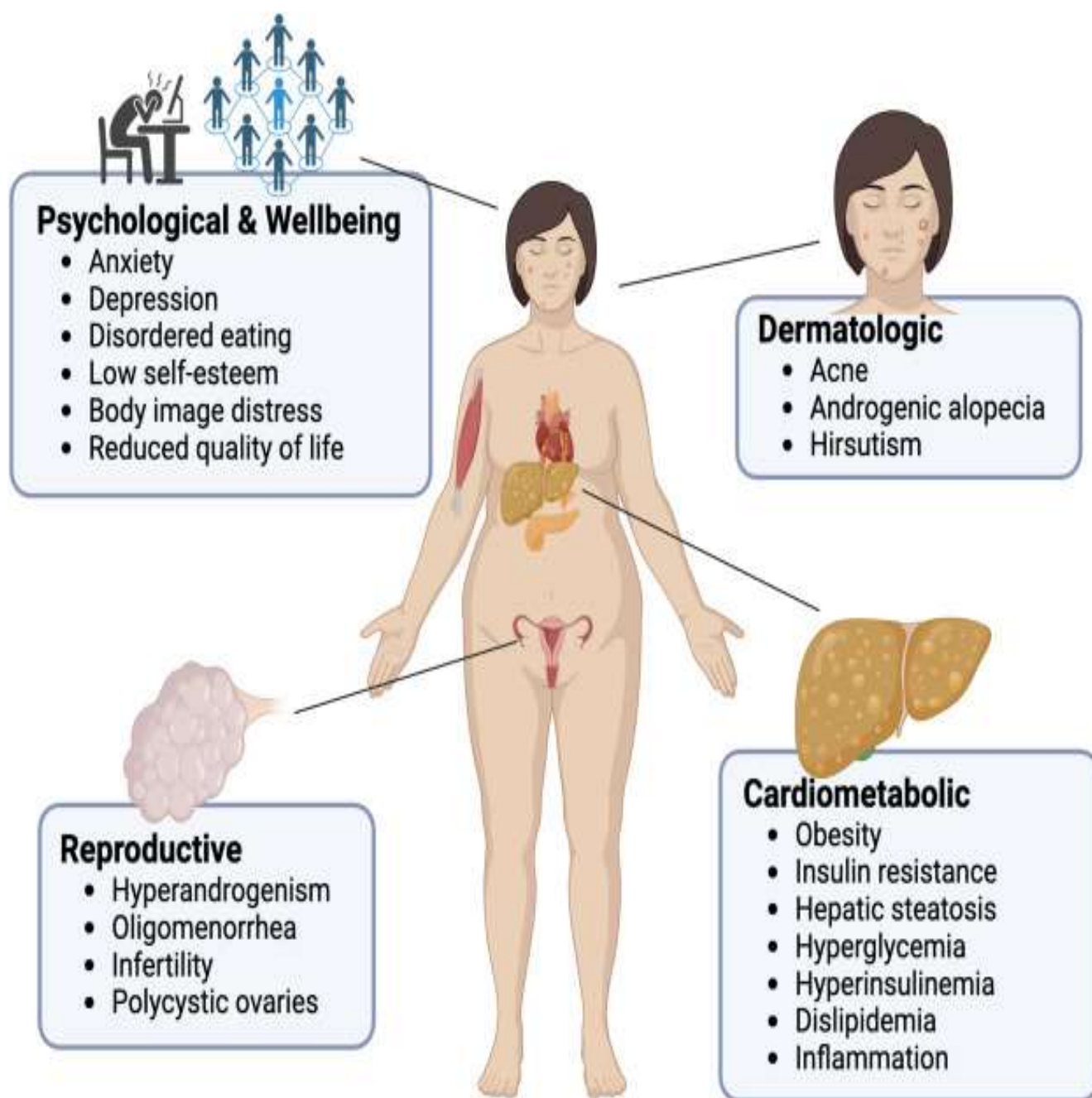


Figure 1. Common symptoms in PCOS.

3.1 Pathogenesis

A complicated polygenic condition, polycystic ovarian syndrome (PCOS) can stand up from the interplay of environmental elements with predisposing and shielding genetic variants. These factors cowl negative life-style picks which includes prolonged sedentary behaviour (e.g., state of no activity at work), inadequate everyday bodily activity, insufficient intake of critical meals groups (e.g., fibre, protein, micronutrients), and too excessive consumption of energy-dense and notably processed foods, which includes sugar-sweetened beverages. Significantly, numerous non-modifiable elements which includes race and own circle of relatives records had been proven to persuade PCOS onset and severity. Excess weight as a consequence of each modifiable and non-modifiable hazard elements aggravates PCOS signs and symptoms for the reason that diploma of insulin resistance and androgen extra will increase with obesity, consequently affecting the medical presentation of PCOS... (R. Deswal, et al. (2020), pp. 261-271)

3.2 Insulin resistance

Although not mentioned in the diagnostic criteria, insulin resistance is a key aetiological feature of PCOS that affects up to 95% of lean women and almost 75% of lean and obese women. Hyperinsulinemia and insulin resistance are hypothesised to increase ovarian androgen synthesis and reduce hepatic sex hormone binding globulin (SHBG), so producing high androgen hormone levels, sometimes known as hyperandrogenism.

In comparison to simply 38% in androgen-impartial PCOS phenotypes, one have a look at located a incidence of 80% in PCOS phenotypes marked through

hyperandrogenism and oligomenorrhea and 65% in people with hyperandrogenism and polycystic ovarian syndrome.

In addition to its bidirectional interplay with androgen excess, insulin resistance is a essential feature of severa cardiometabolic problems related to PCOS, inclusive of metabolic-related fatty liver disease, diabetes, and cardiovascular disease, regardless of frame weight.¹⁸ Consequently, worldwide screening protocols for cardiometabolic threat in PCOS suggest for recurring assessment of obesity, glucose tolerance, and lipid profiles. Hypertension (Table 1).(H. Teede (2010), p. 41)

Table 1. Cardiometabolic screening recommendations for women with PCOS.

Metabolic morbidity	Who should be screened?	Screening recommendation	Screening frequency	Special consideration
		• •		
		Weight and height		
	All women at the time of PCOS diagnosis	to calculate BMI		
Obesity		• •	Every 6–12 months	
		Ideally, waist circumference		

Metabolic morbidity	Who should be screened?	Screening recommendation	Screening frequency	Special consideration
		• • Fasting glucose or HbA1c in low-risk women or • • OGTT in higher-risk women (BMI > 25 kg/m ² or in Asians > 23 kg/m ² , history of abnormal glucose tolerance, or family history of diabetes)		• • An OGTT should be administered to all women with PCOS who are contemplating a pregnancy or pursuing reproductive treatment. • • An OGTT should be administered before 20 weeks of gestation if not conducted preconception,
Impaired glucose tolerance/type 2 diabetes	All women at the time of PCOS diagnosis		Every 1–3 years based on risk factors for diabetes	

Metabolic morbidity	Who should be screened?	Screening recommendation	Screening frequency	Special consideration
				and all women with PCOS should undergo an OGTT between 24 and 28 weeks of gestation.
Dyslipidaemia	All women, irrespective of weight, after the age of 20. Adolescents diagnosed with polycystic ovary syndrome (PCOS) who exhibit	Fasting lipid profile (cholesterol, LDL, HDL, and TG levels)	Subsequent measurements should be directed by the results or overall cardiovascular disease risk. The ACC/AHA guidelines advise evaluations at a minimum of	

Metabolic morbidity	Who should be screened?	Screening recommendation	Screening frequency	Special consideration
	overweight or obesity		every 4 to 6 years.	
Hypertension	All women at the time of PCOS diagnosis	Blood pressure	Annually or more regularly, contingent upon worldwide cardiovascular disease risk.	

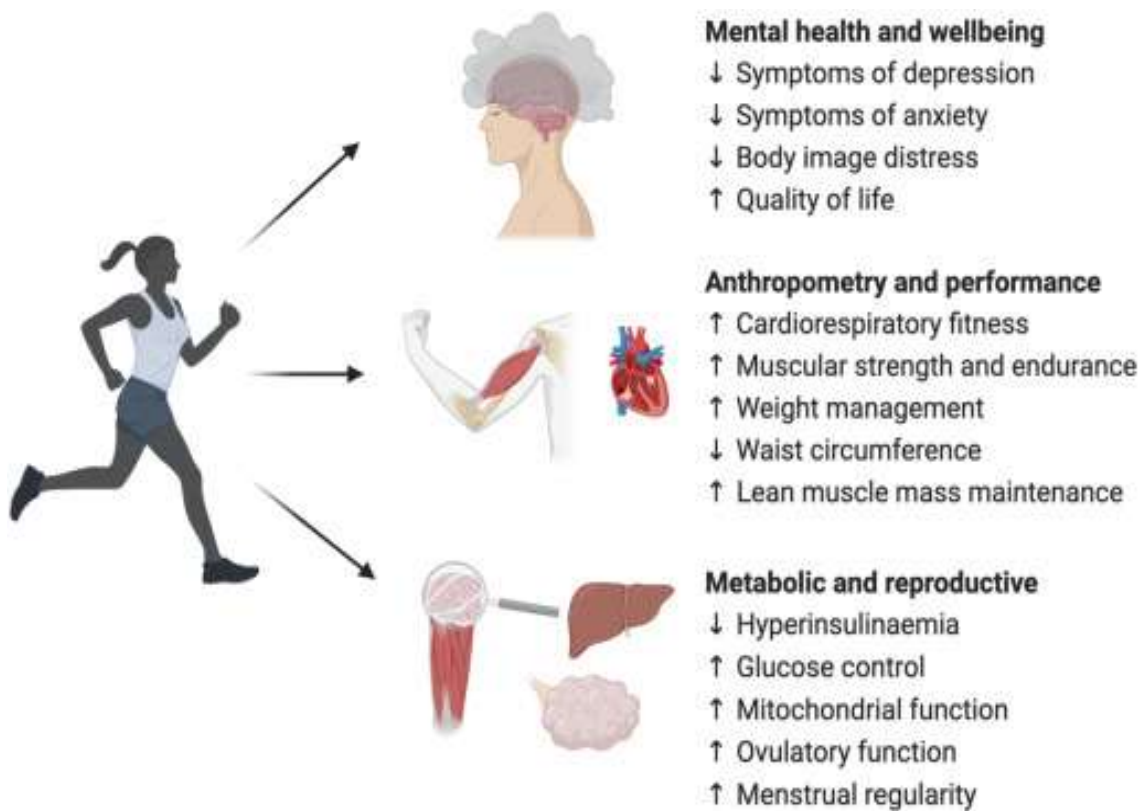
ACC/AHA refers back to the American College of Cardiology/American Heart Association; BMI denotes frame mass index; CVD indicates cardiovascular disease; HbA1c represents haemoglobin A1c; HDL suggests high-density lipoprotein cholesterol; LDL stands for low-density lipoprotein cholesterol; OGTT is the oral glucose tolerance test; PCOS refers to polycystic ovary syndrome; TG denotes triglycerides.

3.3 Androgen excess and ovarian dysfunction

Androgens and oestrogens have historically been labeled as intercourse hormones and play a position in regulating severa physiological functions, which include reproduction, strength homeostasis, and intellectual health. In females, androgens notably make a contribution to the preservation of reproductive organs, coronary heart metabolism, musculoskeletal health, and cognitive function. Twenty Healthy tiers of intercourse hormones are essential for top of the line ageing; however, 4 out of 5 ladies with PCOS showcase androgen excess, that is the most important feature of the condition. Women with hyperandrogenism often showcase numerous medical manifestations together with hirsutism, acne, or androgenic alopecia. Hyperandrogenism is biochemically described with the aid of using accelerated quantities of androgens, together with testosterone, proandrogens, and enzymes that facilitate the conversion of proandrogens into physiologically energetic androgens. Excess androgen synthesis originates withinside the ovary and is without delay brought on with the aid of using insulin and gonadotropins, which include luteinizing hormone. Moreover, hyperandrogenism is connected to and allows the emergence of bodily traits of polycystic ovaries, which include interstitial thecal hyperplasia and lots of underdeveloped follicles withinside the ovaries. (H.J. Teede, (2023), pp. 767–793)

3.4 Evidence for the role of exercise in the management of polycystic ovary syndrome

Physical activity is characterised as any movement produced by skeletal muscles that leads to energy consumption. Instances of physical exercise encompass active commuting and gardening. Exercise is a systematic and repetitive physical activity, intentionally designed to enhance or sustain health, well-being, and/or performance. This section delineates the established benefits of structured exercise, as opposed to general physical activity, on several outcomes related to PCOS (Figure 2).



10

- The impact of exercise on insulin resistance: Research indicates that exercise can enhance insulin sensitivity in women diagnosed with polycystic ovarian syndrome (PCOS), a disease that impairs glucose absorption.

Skeletal muscle is essential for facilitating glucose uptake, and this protein modulates AMPK, which is stimulated by physical activity. Nevertheless, certain research indicate that PCOS may hinder the mechanisms by which exercise enhances metabolism. Although there is a molecular rationale for utilising exercise to enhance insulin sensitivity, empirical data has yielded inconsistent outcomes. The variable outcomes indicate that additional factors may affect their efficacy, including prescription settings, follow-up evaluations, and participant attributes. Consistent physical activity and exercise are crucial for regulating long-term insulin resistance and enhancing overall metabolic health. H.F. Escobar-Morreale, (2005), pp. 251-282)

- Effects of bodily exercising on ovarian functioning and androgen augmentation. Through growing SHBG concentrations, which binds to circulating testosterone and modifies its bioavailability, exercising has been proven to enhance loose androgen ranges in ladies with polycystic ovarian syndrome (PCOS). By decreasing hepatic SHBG manufacturing and elevating serum-loose testosterone, exercising can assist to decrease hyperinsulinaemia, consequently possibly influencing androgen ranges. Still, the precise mechanisms through which exercising impacts SBHG—mainly through manner of its impact on insulin ranges—continue to be unknown. For PCOS sufferers, exercising improves ovarian function, which reduces hormonal imbalances and will increase lean muscle groups and/or frame fat, so enhancing ovulation fees and ordinary month-to-month cycles.

Additional research is required to elucidate the molecular processes that facilitate exercise-induced enhancements in ovarian function in polycystic ovary syndrome (PCOS). E. Diamanti-Kandarakis (2012), pp. 981-1030)

- The effect of exercise on heart health, weight, and body composition

For girls with polycystic ovary syndrome (PCOS), bodily interest has confirmed upgrades in cardiometabolic fitness outcomes. Though small adjustments in waist circumference had been observed, frame weight and lipid profiles stay the same. Early compensatory mechanisms can be liable for the unchanged fasting blood glucose and insulin levels. Exercise parameters—such as intervention length, modality, volume, intensity, and frequency—may also have an effect on the effectiveness of programs. Independent of weight reduction, workout has proven effectiveness in decreasing cardiovascular disorder threat and enhancing primary adiposity. Those with insulin resistance and PCOS restrict the mitochondrial interest of skeletal muscle, that is suggestive of substrate metabolism and electricity technology capacity. Exercise has been tested to enhance mitochondrial interest and number, subsequently enhancing metabolic condition. An indication of metabolic disorder, cardiorespiratory health is negatively connected with insulin resistance and ectopic fats deposition.. (J.L. Chan (2017), pp. 189.)

- The effect of exercise on mental health and quality of life

Women with Polycystic Ovary Syndrome (PCOS) have found that exercise is a useful strategy for improving mental health outcomes and quality of life. In half of the fifteen studies looked at, interventions using exercise—either alone or in

combination with other lifestyle therapies—found reduced symptoms of anxiety and depression.

Exercise enhanced many aspects of health-related quality of life in all studies. Nonetheless, the diagnosis of a mental health disorder was neither an inclusion nor an exclusion criterion for the investigations. Exercise interventions markedly enhanced aspects pertaining to emotions, infertility, and weight. (J.M. Vink, (2006), pp. 2100–2104)

Consistent physical activity may enhance women's body image without substantial weight reduction. Additional research with explicitly specified workout procedures is necessary to clarify this connection.

Chapter Four : Conclusions and Recommendations

In accordance with the general population lines, women would try to be 300 minimum of physical intensity or a week for two consecutive days per week and avoid weight gain. Women with SOPK should take place at least 250 minutes of moderate or 150-minute intensity activity Aerobic activity with weekly intensity, or equivalent of the equivalent of the non-muscle of health benefits are at least 60 minutes of moderate physical activity and includes training sessions that reinforce their muscles and bones at least three times a week. Exercise skill should use a concentrated approach to a person Include the patient in the medical decision process. Using sensitive competing strategies to promote physical activity, professional exercise must be in account the local and socio –ecok–thers–thers of the individual.

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